Honeywell

STRYKER CVAHU ZIO
CUL6438SR-CV1

CONFIGURATION GUIDE

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INTRODUCTION

Description of Devices

Stryker™ Lon Configurable CVAHU Controller

Figure 1: Stryker™ Lon Configurable CVAHU Controller

General

The CUL6438SR-CV1 is part of the Stryker family. The controllers are Free Topology Transceiver (FTT) LONMARK®-certified devices designed to control HVAC equipment. This is advanced system feature that allows state-of-the-art, commercial building control. Each controller is configurable using the NIAGARA FRAMEWORK® software.

The Stryker controllers require the Stryker feature to be licensed in the WEBpro workbench tool and the WEBs AX JACE Controller for programming. It can download to any brand of the Niagara Workbench or JACE controller.

Controllers are used in VAV (Variable Air Volume) and CVAHU (Constant Volume Air Handling Unit) control applications. Each controller contains a host microcontroller to run the main HVAC application and a second microcontroller for LONWORKS® network communications. Each controller provides flexible, universal inputs for external sensors, digital inputs, and a combination of analog outputs and digital outputs.

Features

- Uses the Echelon® LONWORKS® network protocol.
- Free Topology Transceiver (FTT) high-speed 78 kilobits communications network.
- Capable of stand-alone operation, but may also use LONWORKS® bus network communications.
- Sylk™ bus for use with Sylk-enabled sensors.
- 120 controllers per Q7751A, B router when configured as a repeater.
- Field configurable for control, input, and output functions using the NIAGARA FRAMEWORK® software.
- Built-in zone control functions include a remote wMarkall module interface and a scheduler.
- All wiring connections are made to removable terminal blocks to simplify controller installation and replacement.

For more information, refer below mentioned documents as shown in Table 1:

Table 1: Stryker reference documents

Form No.	Title
63-4529—03	Stryker™ Lon Configurable VAV/CVAHU Controller Specification Data
62-2029—02	Stryker™ Lon Configurable VAV/CVAHU Controller Installation Instructions

Zio®/Zio Plus LCD Wall Modules

Figure 2: Zio/Zio Plus LCD Wall Modules

General

The TR70 Series Zio (TR70/TR70-H, TR71/TR71-H) and Zio Plus (TR75/TR75-H) are 2-wire, non-polarity sensitive, and Sylk bus communicating wall modules for use with Spyder® and Comfort Point™ programmable controllers.

All models have a space-temperature sensor, network bus jack, and an LCD panel with three soft keys and two Up/Down adjustment keys. The TR7-H, TR71-H and TR75-H models include an on-board humidity sensor.

Note:

Refer to the Zio/Zio plus LCD Wall Modules Operating Guide (form 63-2719) for information about customizing the wall module configuration in the WEBs-AX Workbench, such as modifying the default Home screens or creating your own application.

Features

The TR70 Series wall modules include:

- Ability to control tenant access to controller parameters via password protection.
- Ability to assign labels for enumerated values.
- Customized parameter access, by using the Honeywell WEBs-AX Workbench tool.
- Ability to link setpoint limits to a network variable.
- Programmable for: home screen options, tenant access, contractor access, optional password protection to contractor mode, access to controller parameters, Setpoint, override, fan, and other parameters.
- Ability to access and adjust most parameters in the programmable controller.
- TR75 can access and adjust the controller schedule.
- Ability to balance the VAV system from the wall module.
- Home screen can display one out of three following parameters: temperature setpoint, room temperature, room humidity, outdoor humidity, outdoor temperature, and time, or virtually any one of parameters in the controller.
- Network bus jack.
- Simple 2-wire terminal connection to the programmable controller (includes power) and an optional 2-wire terminal connection for the network. All connections are polarity insensitive.
- Permanent retention of user configuration, including Setpoints after a power outage.

For more information, refer below mentioned documents as shown in Table 2

Table 2: Zio reference documents

Form No.	Title
63-1322—02	Zio®/Zio Plus LCD Wall Modules Wall Module Specification Data
62-0271-07	Zio®/Zio Plus LCD Wall Modules Wall Module Installation Instructions
63-2719	LCD Wall Modules Wall operating guide

Control Application

Stryker CVAHU systems in commercial buildings typically incorporate a packaged air handler system that delivers a constant volume of air at preconditioned temperatures to the zone being served. Each zone is usually serviced by a separate AHU; however, sometimes two or more AHUs service the same zone. The Stryker CVAHU can control staged or modulating heating and cooling coils, mixed air economizer dampers, and the system fan. Control of heat pump units, where the compressor(s) is used for both cooling and heating, is also provided. The zone the Stryker CVAHU services can use a TR71/75 for space temperature sensing and an S-bus and LON bus network access for users via Zio and front end graphics respectively.

Figure 3 shown below is typical Stryker CVAHU control application.

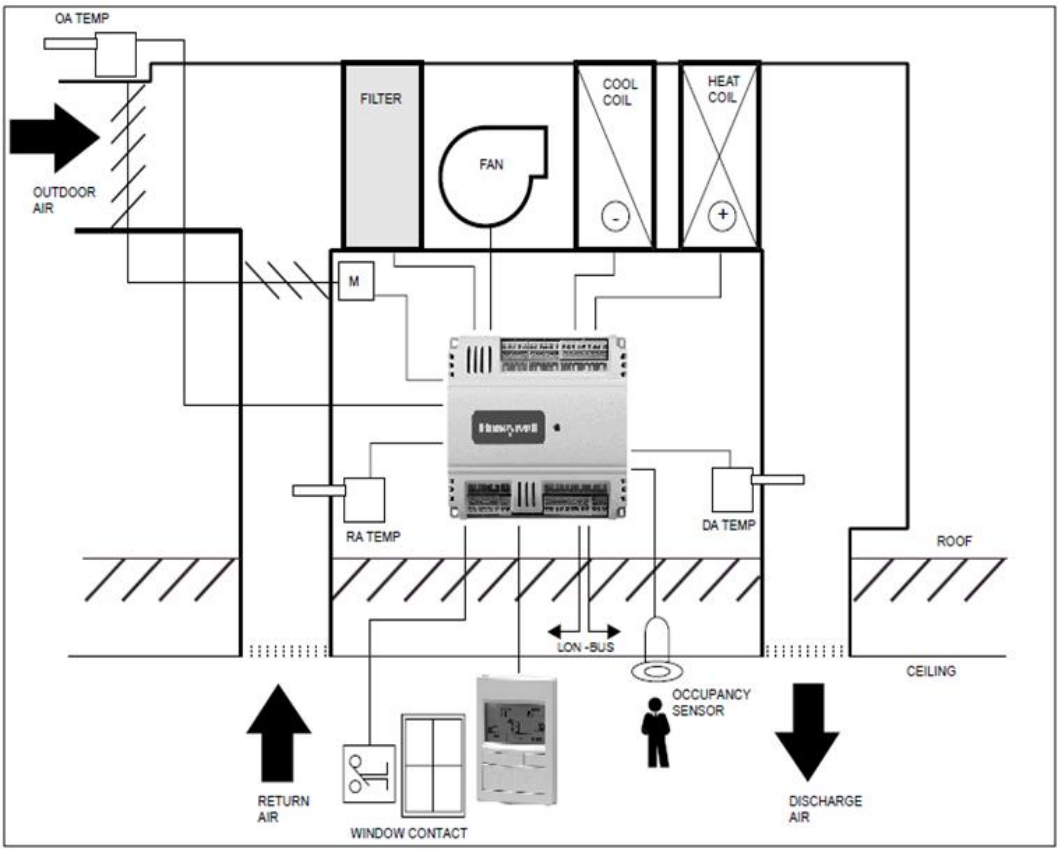

Figure 3: Typical Stryker CVAHU control application

Control Provided

The Stryker CVAHU Controller is designed to control a single air handler to maintain the unit's space temperature at the current Setpoint. Heating and cooling control are provided for either staged or modulating equipment. Up to three stages of mechanical cooling and up to three stages of heating are allowed. Modulating outputs can be either floating type such as a series 60 control, or pulse width modulated (PWM) control. The economizer dampers can be controlled directly with floating or PWM outputs, or indirectly using a digital output as an enable/disable signal to a packaged economizer controller. The economizer enable function, determines when to allow outdoor air for free, cooling, can be configured, to one of the strategies based on the inputs. When the economizer position is controlled from the Stryker CVAHU, the minimum position setting (for ventilation requirements) is adjusted based on indoor air quality (IAQ) needs in the space. IAQ monitoring is provided through either a CO_2 sensor or a digital input from a space-mounted IAQ limit switch.

For heat pump configurations, up to three compressors can be controlled, along with up to three stages of auxiliary heat, and a heat/cool change over valve. Including the supply fan, a combination of these items may not exceed eight outputs in a Stryker CVAHU. The Stryker CVAHU Controller can monitor a space-mounted occupancy sensor, and a door/window contact. These inputs affect the operational mode of the controller.

The Stryker CVAHU Controller allows other controllers in the system to use the physical inputs and outputs. A digital input and an analog input can be configured to read switch states and voltage sensor values, respectively, and send them out over the S and LON-bus network.

Products Covered

This System Engineering Guide describes how to configure Stryker CVAHU controller via TR71/75 Zio wall module.

Stryker CVAHU Controllers and related accessories to typical applications are as follows:

- Stryker CVAHU controller.
- TR71/75 wall modules.
- 209541B FTT termination module.

Organization of Manual

This manual is divided into two basic parts: introduction and configuration.

The Introduction provides information for Stryker LON configurable CVAHU controller and TR70 series Zio/Zio Plus LCD wall modules, control application, control provided, product covered, and abbreviations.

Configuration steps provide information for the engineering of Stryker LON configurable CVAHU controller by TR70 series Zio/Zio Plus LCD wall modules using its various function keys.

The organization of the manual assumes a project is being engineered from installation to finish.

Applicable Literature

List of documents containing information related to the configurable lighting controllers as shown in Table 3.

Table 3: List of applicable literature

Form No.	Title
63-4529—03	Stryker™ Lon Configurable VAV/CVAHU Controller Specification Data
62-2029—02	Stryker™ Lon Configurable VAV/CVAHU Controller Installation Instructions
63-1322—02	Zio®/Zio Plus LCD Wall Modules Wall Module Specification Data
62-0271-07	Zio®/Zio Plus LCD Wall Modules Wall Module Installation Instructions
63-2719	LCD Wall Modules Wall operating guide
209541B	LONWORKS® Bus Wiring Guidelines/ Termination Module Installation Instructions

For additional CVAHU Stryker and Zio wall module latest documents and updates visit http//www.customer.honeywell.com

And search for CVAHU Stryker and Zio wall module respectively.

Product Names

Stryker LON CVAHU controller is available as one model.

CUL6438SR-CV1: Constant volume air handling unit controller from Stryker LON family.

The TR70 series Zio wall module is available in four models:

- TR70
- TR70H
- TR71
- TR71H

The TR70 series Zio Plus wall module is available in two models.

- TR75
- TR75H

Note:

All models have a space-temperature sensor, network bus jack, and an LCD panel with three soft keys and two up/down adjustment keys. The TR70-H, TR71-H and TR75-H models include an onboard humidity sensor.

Other products:

Q7751A, B: Router (configured as a repeater)

Q7752A, B: Serial interface adapter

209541B: Termination module.

Agency Listings

Table 4: Agency listing

Device	Agency	Comments
CUL6438SR-CV1 controller	UL	Tested and listed under UL916 (Standard for open energy management equipment) with plenum rating. File number - E87741
	cUL	Listed (E87741).
	CSA	LR95329-3 listed.
	FCC	Meets FCC Part 15, Subpart B, Class B (radiated emissions) requirements. Meets Canadian standard C108.8 (radiated emissions).
	CE	Conforms to the following requirements per European Consortium standards: EN 61000-6-1; 2001 (EU immunity) EN 61000-6-3; 2001 (EU emissions)
Zio®/Zio Plus LCD wall modules TR70, TR71, TR75 with Sylk® bus	UL	(Not applicable.)
	cUL	(Not applicable.)
	CSA	(Not applicable.)
	FCC	(Not applicable.)
	CE	(Not applicable.)

Abbreviations

AHU: Air Handling Unit. The central fan system includes the blower, heating equipment, cooling equipment, ventilation air equipment, and other related equipment.

CO: Carbon Monoxide. Occasionally used as a measure of indoor air quality.

CO_2: Carbon Dioxide. Often used as a measure of indoor air quality.

CPU: Central Processing Unit

cUL: Underwriters Laboratories Canada

CVAHU: Constant Volume Air Handling Unit; refers to a type of air handler with a single-speed fan that provides a constant amount of supply air to the space it serves.

Echelon: The Company that developed the LON® bus and the Neuron® chips used to communicate on the E-bus.

Economizer: Mixed-air dampers that regulate the quantity of outdoor air that enters the building. In cool outdoor conditions, fresh air is used to supplement the mechanical cooling equipment. Since this action saves energy, the dampers are often referred to as economizer dampers.

EMI: Electromagnetic Interference. Electrical noise that can cause problems with communications signals.

EMS: Energy Management System; refers to the controllers and algorithms responsible for calculating optimum operational parameters for maximum energy savings in the building.

Enthalpy: The energy content of air measured in BTUs per pound (Kilojoules per Kilogram).

Firmware: Software stored in a nonvolatile memory medium such as an EPROM.

Floating Control: Floating Control utilizes one digital output to pulse the actuator open, and another digital output to pulse it closed.

FTT: Free Topology Transceiver.

IAQ: Indoor Air Quality. It refers to the quality of the air in the conditioned space, as it relates to occupant health and comfort**.**

I/O: Input/Output; the physical sensors and actuators connected to a controller.

I * R: I times R or current times resistance; refers to Ohm's Law**:** V = I x R.

K: Degrees Kelvin.

NV: Network Variable; a Stryker CVAHU parameter that can be viewed or modified over the Lon/S-bus network.

PWM: Pulse Width Modulated output; allows analog modulating control of equipment using a digital output on the controller.

RTD: Resistance Temperature Detector; refers to a type of temperature sensor whose resistance output changes according to the temperature change of the sensing element.

TPT: Twisted Pair Transceiver.

VA: Volt Amperes; a measure of electrical power output or consumption as applied to an AC device.

Vac: Voltage alternating current; AC voltage rather than DC voltage.

VAV: Variable Air Volume; refers to either a type of air distribution system, or VAV Box Controller that controls a single zone in a variable air volume delivery system.

Constructions of Controller and Wall Module

For more details, refer to the following literature:

63-4529–03: Stryker™ Lon Configurable VAV/CVAHU Controller Specification Data

62-2029–02: Stryker™ Lon Configurable VAV/CVAHU Controller Installation Instructions

63-1322–02: Zio®/Zio Plus LCD Wall Modules Wall Module Specification Data

62-0271–07: Zio®/Zio Plus LCD Wall Modules Wall Module Installation Instructions

63-2719: LCD Wall Modules Wall operating guide.

209541B: LONWORKS® Bus Wiring Guidelines/ Termination Module Installation Instructions

STRYKER CVAHU CONFIGURATION BY ZIO WALL MODULE

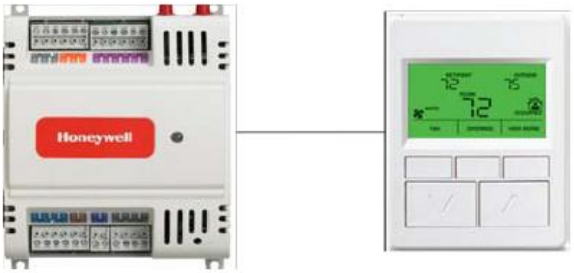

Figure 4: Stryker CVAHU configuration by Zio wall module

Strykers are configured by the new TR71/75 wall modules. Nearly every configuration parameter is available at the Zio wall module, so configuration and even balancing is done by simply powering up the controller, connecting a Zio and then configuring the parameters available. After configuration is done via the Zio, an Integrator perform an upload and the configuration is added to the WEBs-AX station database.

Since Stryker has the capability to utilize Zio, an installer uses a conventional sensor on all installed Stryker units, and then uses a single Zio to configure as many Stryker's as desired. Since the Zio's program and configuration are stored in the Stryker, each time the Zio is connected to a new Stryker, it gets its program from that device.

This document serves as a configuration guide for an installer who is configuring a Stryker CVAHU controller via a TR71 or TR75 wall module. Parameters are grouped into logical categories rather than on a large list. To access the "contractor" mode for configuration, press the up, down and middle keys simultaneously. During this time the model number and firmware revision of the TR71/75 are displayed. You are then prompted to enter a password (default 0000).

Compatibility

The TR70 Series LCD Wall Modules operate with the Sylk Enhanced Stryker controller. The TR71/TR75 can replace a TR70 in an installation where an upgrade to WEBs- AX or Stryker or reprogramming is not desired. Features like scheduling, additional memory, etc. are not available. Likewise, a TR71 is replaced by another TR71 or TR75 without reprogramming required. A TR75 can only be replaced with a TR75 where no reprogramming is desired.

Contractor Mode: Introduction

Contractor mode: You can navigate to the desired category of parameters. You can then begin configuring and viewing information from the device.

Each screen below has a brief explanation of the data; values within the contractor mode are only visiable in English (U.S.) units of measure. Temperatures however can be shown on the home screen as C or F.

Contractor mode allows access to the Setup function of the wall module. To enter and exit the setup function – press the up and down arrow keys and the middle soft key all at the same time (see key positions of wall module as shown in Figure 5).

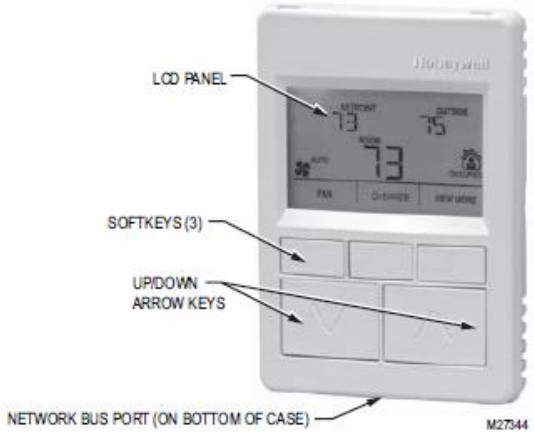

Figure 5: Key position of wall module

Contractor mode allows advanced options (such as modifying configured parameters) using the soft keys. Contractor mode also allows for customizing the tenant's view including setting the tenant's Home screen and controlling the tenant's "view more" access, which can provide the tenant with a view of the configured parameters.

Initial Power-Up

IMPORTANT:

1. *Make sure the TR70 Series wall module is properly mounted and properly wired and connected to the programmable controller.*
2. *Refer to the Zio™ LCD wall modules TR70 Series with Sylk™ bus – installation instructions, form no. 62 – 0271, for specific installation requirements.*

Upon initial power-up before configuring the wall module, the LCD screen of the wall module will display status as “PLEASE LOAD”. As shown in Figure 6, the startup screen of the wall module where the status is displayed.

And also illustrates all the possible LCD Wall Module display elements. Only those elements pertinent to the current configuration and status actually display.

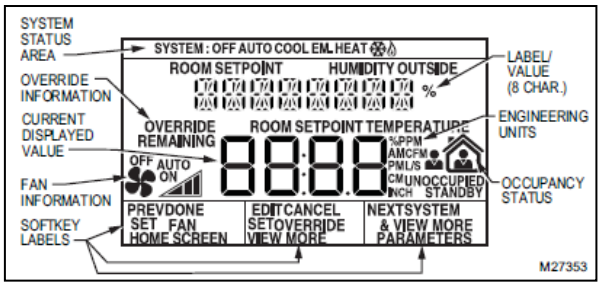

Figure 6: TR70 Series Wall Module - LCD screen

This phrase alternates with any onboard sensor display such as temperature. The TR71/TR75 also display the firmware revision number, model number and Sylk bus address as shown in Figure 7.

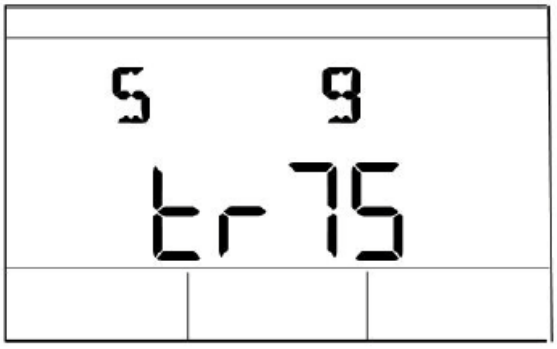

Figure 7: Model number and Sylk bus address

On power-up, screen displays revision and Zio model number.

Controller features not supported by Zio configuration

- Network functionality
- Accessory loops
- Custom sensors
- Local sensor (UI 1-4) calibration

CVAHU controller default configuration

- Wall module: Zio
- Center setpoint source: Zio
- Center setpoint: disabled (controller ignores center setpoint value
- Center setpoint high limit: 100
- Center setpoint low limit: –10
- Room temperature source: Zio (TR71/75)

Contractor Mode: Configuration Steps

The Contractor Mode screen as shown in Figure 8

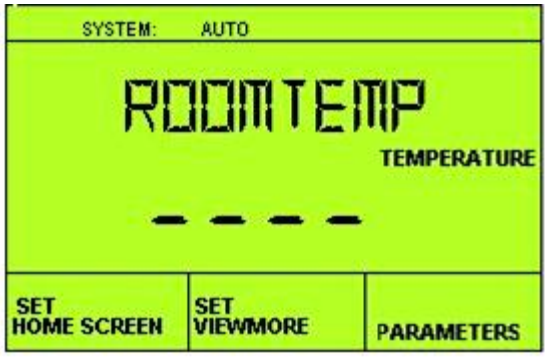

Figure 8: Contractor mode default home screen

The three soft keys on the contractor home screen provide the following three options

1. Set home screen
2. Set view more
3. Parameters

Set Home Screen

SET HOME SCREEN allows the contractor to choose among multiple home screen options for the tenant.

The tenant's home screen choices are created by the configuration wizard and downloaded to the wall module. Each wall module may have different home screen choices. The contractor, using the soft keys, may choose which home screen is to be used. He may configure the Tenant view to show a subset (or none) of the configured parameters.

When the contractor clicks the **SET HOME SCREEN** soft key, the display changes as shown in the Figure 9 to Figure 12. The soft keys change to **DONE**, **CANCEL**, and **NEXT** as per configuration requirement.

- Click **NEXT** soft key to cycle through the configured home screens.
- Click **DONE** soft key when the desired home screen to be set as default home screen for Tenant view.
- The **CANCEL** soft key exits the home screen display without saving any changes.

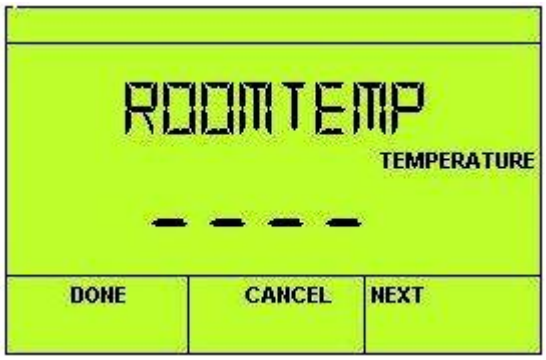

Figure 9: Home screen Roomtemp

Home screen: ROOMTEMP

Description: Default home screen displays room temperature (setpoint is not adjusted from this home screen as shown in Figure 10)

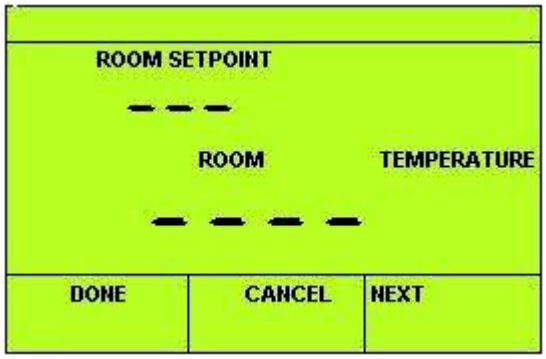

Figure 10: Home screen Room Setpoint, Roomtemp

Home screen: ROOM SETPOINT, ROOMTEMP

Description: Displays room temperature and effective room temperature setpoint (setpoint is not adjusted from this home screen)

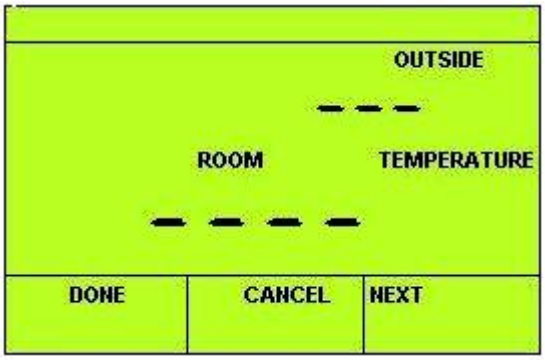

Figure 11: Home screen Outside Room Temperature

Home screen: OUTSIDE ROOMTEMPERATURE

Description: Displays outside air temperature and room temperature (setpoint is not adjusted from this home screen)

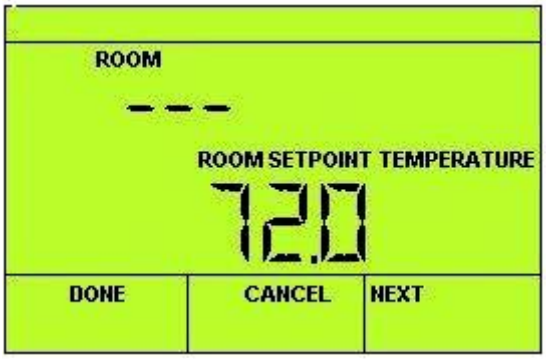

Figure 12: Home screen Room, Room Setpoint Temperature

Home Screen: ROOM, ROOM SETPOINT TEMPERATURE

Description: Displays room temperature and room setpoint temperature (setpoint is adjusted from this home screen)

Set View More

SET VIEW MORE allows the contractor to provide parameter access (view only or adjustable) to the tenant's **VIEW MORE** soft key.

Click **SET VIEW MORE** soft key to display the first configured parameter as shown in Figure 13.

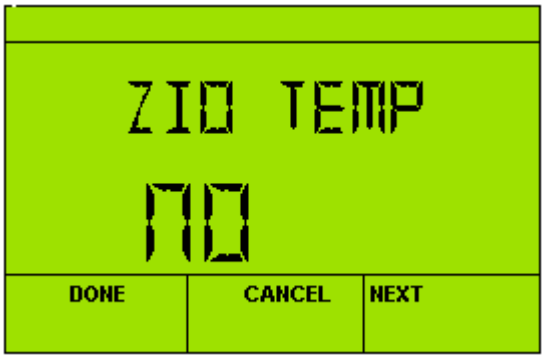

Figure 13: Set View More First screen

The soft keys changes to **DONE, CANCEL**, and **NEXT** as per configuration requirement.

- The **Up** and **Down** arrow keys switch the parameter between **YES** and **NO** (view or no view in tenant mode).
  - **YES** means that the tenant has access to the parameter on the **VIEW MORE** screen.
  - **NO** means that the tenant does not have access to the parameter.
  - If **NO** is selected for all parameters, then the **VIEW MORE** soft key does not display in tenant mode.
- Click **NEXT** soft key to cycle through the configured **VIEW MORE** screen's next parameter or category
- Click **DONE** soft key to save configuration changes.
- Click **CANCEL** soft key to exit **VIEW MORE** without saving any changes.

Note:

Click NEXT, DONE, and CANCEL to do YES or NO configuration for below mentioned parameters.

After clicking **NEXT** on particular screen, parameters are displayed in following order.

1. ZIO HUM
2. ROOMTEMP
3. RH
4. CO_2
5. DISCHRG
6. OAT
7. OAH
8. OCC SNSR
9. WINDOW
10. MON SWTH
11. MON MODU
12. CLG STG
13. HTG STG
14. DAMPER
15. DMD LIMT
16. TRMNL LD
17. AUX ECON
18. FREE MOD
19. FREE DIG
20. FAN
21. OCC CLG
22. OCC HTG
23. UNOCC CLG
24. UNOCC HTG
25. STBY CLG
26. STBY HTG
27. SETPOINT
28. FRZ PRTC
29. EFF SP
30. FAN OVRD
31. EMRGOVRD
32. CLG OVRD
33. HTG OVRD
34. FAN OVRD
35. FROST
36. IAQ ALM
37. INVLD SP
38. SPCTEMP
39. ZIO T OF
40. ZIO H OFF
41. UNITS
42. TYPE
43. CNTR SP
44. CNTSP HI
45. CNTSP LO
46. BYPS MIN
47. HTGSP HI
48. HTGSP LO
49. CLGSP HI
50. CLGSP LO
51. EFHTG HI
52. EFHTG LO
53. EFCLH HI
54. EFCLG LO
55. HP TYPE
56. CLG TYPE
57. CLG TR
58. CLG IT
59. HTG TYPE
60. HTG TR
61. HTG IT
62. FAN MODE
63. OC SNROP
64. UI1
65. UI2
66. UI3
67. UI4
68. UI5
69. UI6
70. DI1
71. DI2
72. DI3
73. DI4
74. SPC TEMP
75. SPC RH
76. SPC CO2
77. DISCHAIR
78. MIXEDAIR
79. OD ETMP
80. OCC SNSR
81. WINDOW
82. RANGE (for AO1)
83. RANGE (for AO2)
84. RANGE (for AO3)
85. CLG STG1
86. CLG STG2
87. CLG STG3
88. HP CHANG
89. HTG STG1
90. HTG STG2
91. HTG STG3
92. FAN OUT
93. DAMPER
94. TIME
95. HOURS
96. MIN
97. YEAR
98. MONTH
99. DAY
100. SCHEDULE

Parameters

PARAMETERS allow the contractor to monitor and/or adjust parameters in the programmable controller.

Click **PARAMETERS** soft key on contractor mode default home screen to display the first configured category as shown in Figure 14.

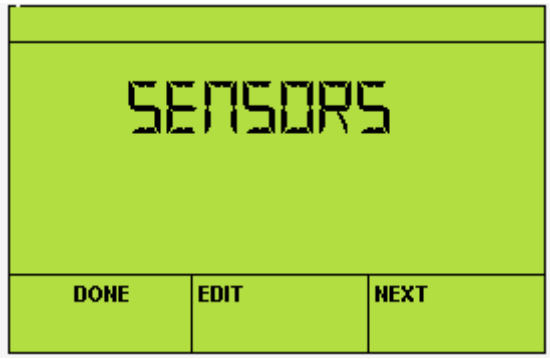

Figure 14: Parameter group Sensors

- The soft keys changes to **DONE, EDIT**, and **NEXT** as per configuration requirement.
- Click the **EDIT** soft key to display the parameter list for the selected category. It displays the first parameter in that category (For example **ZIO TEMP** parameter in the **SENSORS** category as shown in Figure 15.

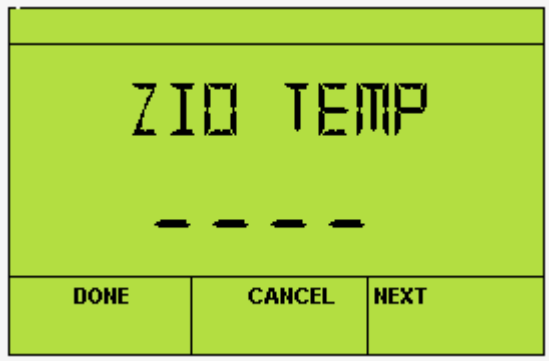

Figure 15: Parameters Sensors Zio Temp

- If the parameter is configured as adjustable by the tenant, the up and down arrow keys adjust the value of the parameter.
- Click **NEXT** soft key to display the next parameter or category.
- Click **DONE** soft key to save configuration changes.
- Click **CANCEL** soft key to the exit **PARAMETER** group or **PARAMETER** without saving any changes.

Click **NEXT** on **SENSORS** parameter group screen. Other parameter group screens are displayed in following order.

1. Status
2. Temp SP
3. Override
4. Alarms
5. Snsr Cal
6. Wm Confg
7. Confg Ctl
8. Confg Ui
9. Confg Di
10. Confg In
11. AO1
12. AO2
13. AO3
14. Cnfg Out
15. Time
16. Set Time
17. Set Date
18. Schedule

Sensors

(CVAHU sensor value display)

Click the **PARAMETERS** soft key to display the first configured category **'SENSORS'**. Within this category, one sample Zio display is shown for reference and the remaining parameters are available for view only as per the following order.

Following is the path to access the screen as shown in Figure 16:

CONTRACTOR>PARAMETERS>SENSORS>ZIO TEMP

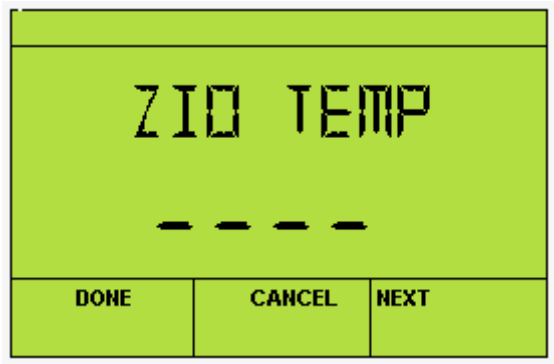

Figure 16: Parameters Sensors Zio Temp

- Click **CANCEL** to return to **SENSORS. SENSOR** is parameter group for this parameter.
- Click **NEXT** to access parameters in the following sequence.

ZIO TEMP: Display Zio temperature which corresponds to the onboard temperature sensor and is an output of the Sbus wall module function block.

ZIO HUMIDITY: Displays Zio humidity (%) sensor from wall module

ROOMTEMP: Displays room temperature and is an input to the Sbus wall module function block.

RH: Displays room relative humidity (%) and is an input to the Sbus wall module function block.

CO_2: Displays room CO_2 (PPM) and is an input to the Sbus wall module function block.

DISCHRG: Displays discharge air temperature and is an input to the Sbus wall module function block.

OAT: Displays outside air temperature and is an input to the Sbus wall module function block.

OAH: Displays outside air humidity (%) and is an input to the Sbus wall module function block.

OCC SNSR: Displays occupancy sensor and is an input to the Sbus wall module function block.

Status is displayed as follows

OCC, UNOC, BYPS, STBY, UNDEFINED

Configuration settings in program are as follows:

0 = OCC (Occupancy Mode)

1 = UNOC (UN occupancy Mode)

2 = BYPS (Bypass Mode

3 = STBY (Standby Mode)

4 = UNDEFINED

WINDOW: Displays window open/closed contact status and is an input to the Sbus wall module function block.

Status is displayed as follows:

CLOS, OPEN, UNDEFINED

Configuration settings in program are as follows:

0 = CLOS (Window close status)

1 = OPEN (Window open status)

2 = UNDEFINED

MON SWTH: Displays monitory switch and is an input to the Sbus wall module function block.

Status is displayed as follows:

OFF, ON, UNDEFINED

Configuration settings in program are as follows:

0 = OFF

1 = ON

255 = UNDEFINED

MON MODU: Displays mon modulation and is an input to the Sbus wall module function block.

Status

(CVAHU parameter status display)

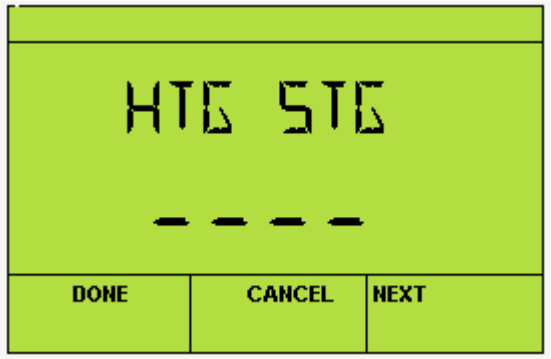

Figure 17: Parameter Status Htg Out

HTG OUT: Displays cooling output signal.

Figure 18: Parameter Status Clg Out

CLG OUT: Displays heating output signal.

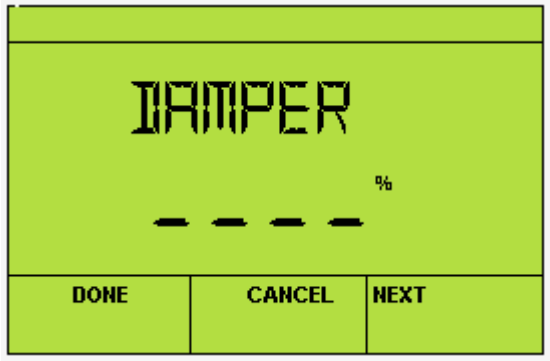

Figure 19: Parameter Status Damper

DAMPER: Displays damper (%) output signal.

Figure 20: Parameter Status Dmd Limit

DMD LIMIT: Displays demand limit setpoint shift status as ON or OFF

Configuration settings in program are as follows:

0 = OFF, 1 = ON, 255 = OFF

Figure 21: Parameter Status Trmnl Ld

TRMNL LD: Displays effective terminal load (%) on the controller. Its value ranges from 160% to 160%. A positive value indicates a cooling load and a negative value indicate heating load.

Figure 22: Parameter Status Aux Econ

AUX ECON: Displays auxiliary economizer status as ON or OFF

Configuration settings in program are as follows:

0 = OFF, 1 = ON, 255 = UNDEFINED

Figure 23: Parameter Status Free Mod

FREE MOD: Displays configured free modulating1 (%) output signal. Its value ranges from 0% to 100%. It is controlled by network command.

Figure 24: Parameter Status Free Dtg

FREE DTG: Displays configured free digital1 command status as ON or OFF. It is controlled by network command.

Configuration settings in program are as follows:

0 = OFF, 1 = ON, 255 = UNDEFINED

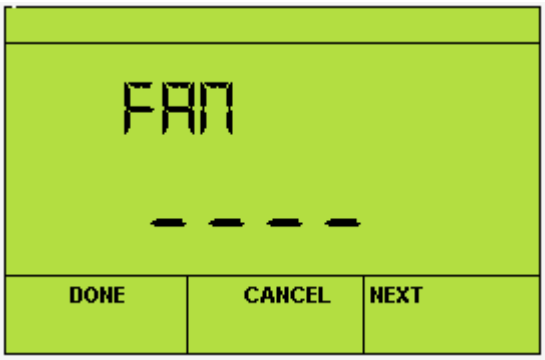

Figure 25: Parameter Status Fan

FAN: Displays fan digital output status as ON or OFF.

Configuration settings in program are as follows:

0 = OFF, 1 = ON, 255 = UNDEFINED

Temp Sp

(CVAHU temperature setpoint configuration)

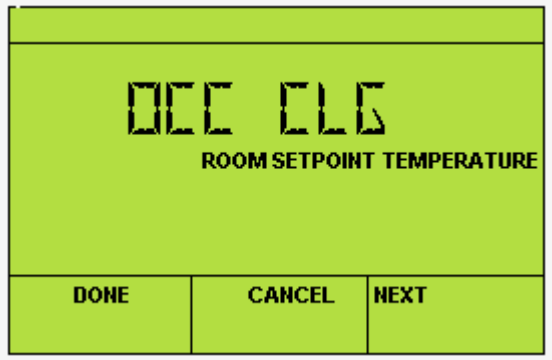

Figure 26: Parameter Temp Sp Occ Clg

OCC CLG: Displays and allows modification of occupied cooling setpoint. Its value ranges from EFCLG LO to EFCLG HI.

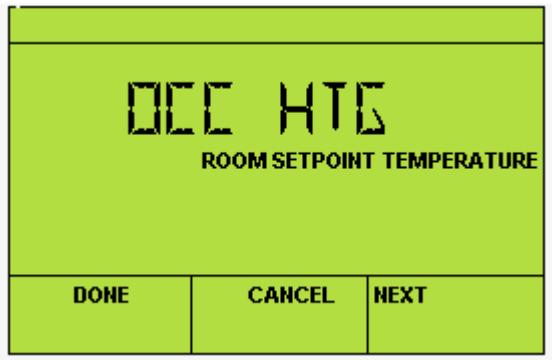

Figure 27: Parameter Temp Sp Occ Htg

OCC HTG: Displays and allows modification of occupied heating setpoint. Its value ranges from EFHTG LO to EFHTG HI.

Figure 28: Parameter Temp Sp Unoc Clg

UNOC CLG: Displays and allows modification of unoccupied cooling setpoint. Its value ranges from STBY CLG to 90.

Figure 29: Parameter Temp Sp Unoc Htg

UNOC HTG: Displays and allows modification of unoccupied heating setpoint. Its value ranges from 50 to STBY HTG.

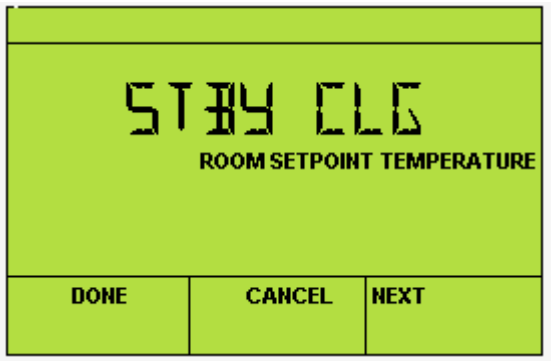

Figure 30: Parameter Temp Sp Stby Clg

STBY CLG: Displays and allows modification of standby cooling setpoint. Its value ranges from OCC CLG to UNOC CLG.

Figure 31: Parameter Temp Sp Stby Htg

STBY HTG: Displays and allows modification of standby heating setpoint. Its value ranges from OCC HTG to UNOC HTG.

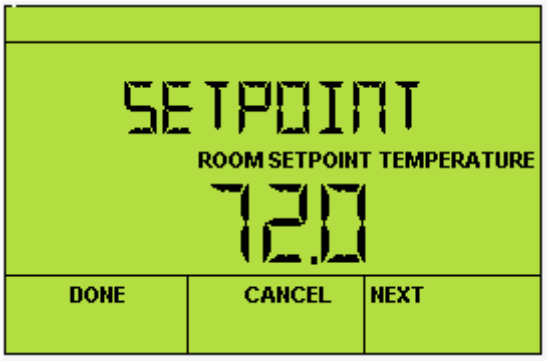

Figure 32: Parameter Temp Sp Setpoint

SETPOINT: Displays and allows modification of centre setpoint read from wall module. Its value ranges from CNTSP LO to CNTSP HI.

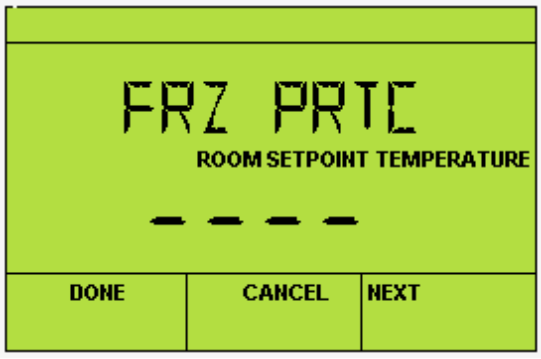

Figure 33: Parameter Temp Sp Frz Prtc

FRG PRTC: Displays and allows modification of Space freeze protection setpoint. Its value ranges from 30 to 70. The space heating setpoint is shifted to this value when a window is opened.

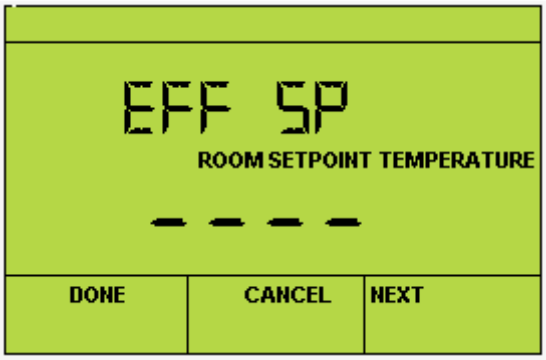

Figure 34: Parameter Temp Sp Eff Sp

EFF SP: Displays room temperature effective setpoint. Its value ranges from 40 to 100.

Override

(CVAHU override used for fan)

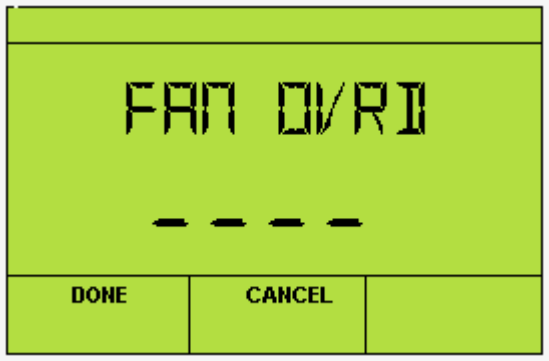

Figure 35: Parameter Override Fan Ovrd

FAN OVRD: Displays and allows modification of supply fan override command as ON, OFF or UNDEFINED.

Default configuration: UNDEFINED

Configuration settings in program are as follows:

0 = OFF, 1 = ON, 255 = UNDEFINED

Alarms

(CVAHU parameter alarms)

Figure 36: Parameter Alarms Emrg Ovrd

EMRG OVRD: Displays smoke detector status as TRUE, FALS or UNDEFINED.

Configuration settings in program are as follows:

0 = FALS, 1 = TRUE, 255 = UNDEFINED

Figure 37: Parameter Alarms Clg Ovrd

CLG OVRD: Displays cooling override status as TRUE, FALS or UNDEFINED.

Configuration settings in program are as follows:

0 = FALS, 1 = TRUE, 255 = UNDEFINED

Figure 38: Parameter Alarms Htg Ovrd

HTG OVRD: Displays heating override status as TRUE, FALS or UNDEFINED.

Configuration settings in program are as follows:

0 = FALS, 1 = TRUE, 255 = UNDEFINED

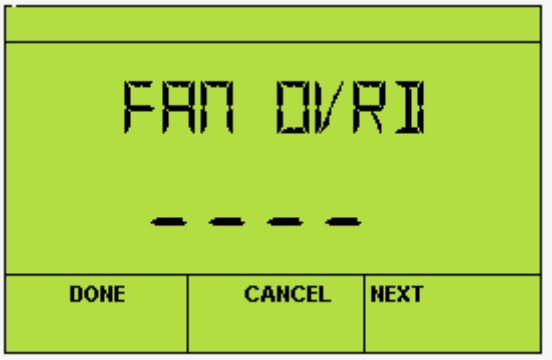

Figure 39: Parameter Alarms Fan Ovrd

FAN OVRD: Displays fan override status as TRUE, FALS or UNDEFINED.

Configuration settings in program are as follows:

0 = FALS, 1 = TRUE, 255 = UNDEFINED

Figure 40: Parameter Alarms Frost

FROST: Displays frost override status as TRUE, FALS or UNDEFINED.

Configuration settings in program are as follows:

0 = FALS, 1 = TRUE, 255 = UNDEFINED

Figure 41: Parameter Alarms Iaq Alm

IAQ ALM: Displays IAQ alarm override status as TRUE, FALS or UNDEFINED.

Configuration settings in program are as follows:

0 = FALS, 1 = TRUE, 255 = UNDEFINED

Figure 42: Parameter Alarms Invld Sp

INVLD SP: Displays invalid setpoint override status as TRUE, FALS or UNDEFINED.

Configuration settings in program are as follows:

0 = FALS, 1 = TRUE, 255 = UNDEFINED

Figure 43: Parameter Alarms Spc Temp

SPC TEMP: Displays space temperature override status as TRUE, FALS or UNDEFINED.

Configuration settings in program are as follows:

0 = FALS, 1 = TRUE, 255 = UNDEFINED

Snsr Calibration

(CVAHU sensor calibration)

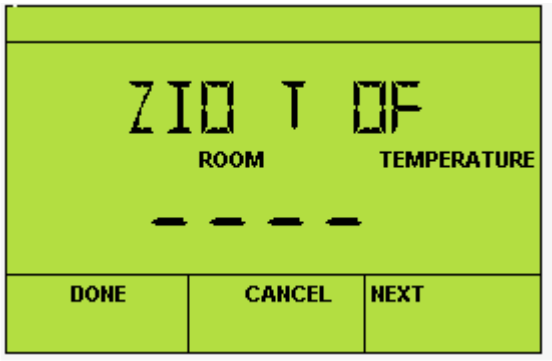

Figure 44: Parameter Snsr Cal Zio T Of

ZIO T OF: Displays and allows modification of Zio temperature offset. Its value ranges from –100 to +100.

Figure 45: Parameter Snsr Cal Zio H Of

ZIO H OF: Displays and allows modification of Zio humidity (%) offset. Its value ranges from –100 to +100.

Wm Config

(CVAHU wall module configuration)

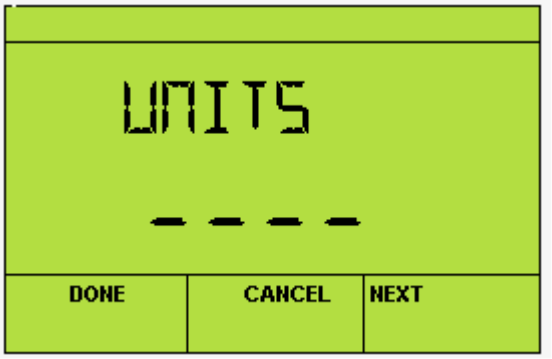

Figure 46: Parameter Wm Config Units

UNITS: Displays and allows modification of units to be displayed for temperature parameters as C, F, UNDEFINED.

Default configuration: UNDEFINED

Configuration settings in program are as follows:

0 = F (Deg. F), 1 = C (Deg. C), 255 = UNDEFINED

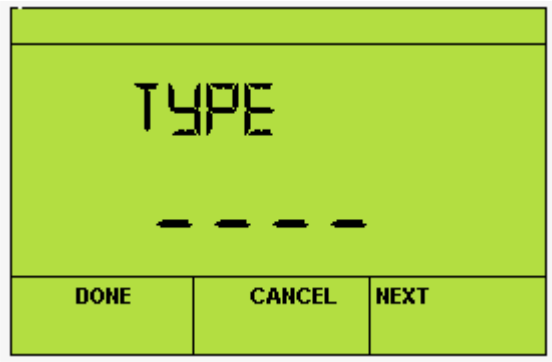

Figure 47: Parameter Wm Config Type

TYPE: Displays and allows modification of type for wall module to be used as NONE, TR20, ZIO, UNDEFINED.

Default configuration: UNDEFINED

Configuration settings in program are as follows:

0 = NONE (No wall module)

1 = TR20 (Conventional wall module TR20)

2 = ZIO (ZIO TR71/TR75)

255 = UNDEFINED

Figure 48: Parameter Wm Config Cntr Sp

CNTR SP: Displays and allows modification of centre setpoint as FALS, TRUE, UNDEFINED. This parameter defines whether centre Setpoint is to be used or not.

Default configuration: UNDEFINED

Configuration settings in program are as follows:

0 = FALS, 1 = TRUE, 255 = UNDEFINED

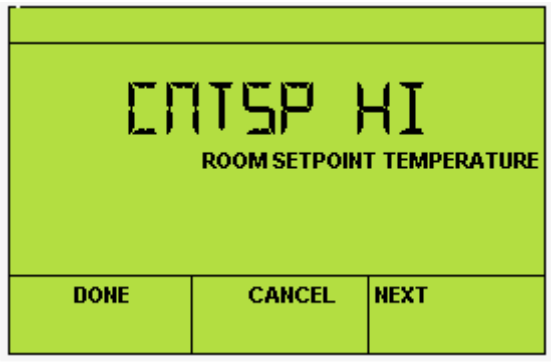

Figure 49: Parameter Wm Config Cntsp Hi

CNTSP HI: Displays and allows modification of centre setpoint high limit. Its value ranges from CNTSP LO to +100.

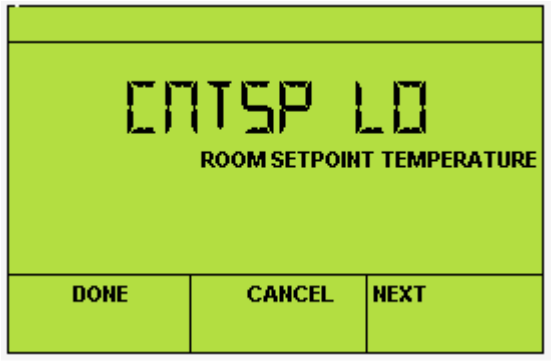

Figure 50: Parameter Wm Config Cntsp Lo

CNTSP LO: I Displays and allows modification of centre setpoint low limit. Its value ranges from –10 to CNTSP HI.

Figure 51: Parameter Wm Config Byps Min

BYPS MIN: Displays and allows modification of wall module bypass time setpoint in minutes. Its value ranges from 0 to 1092.

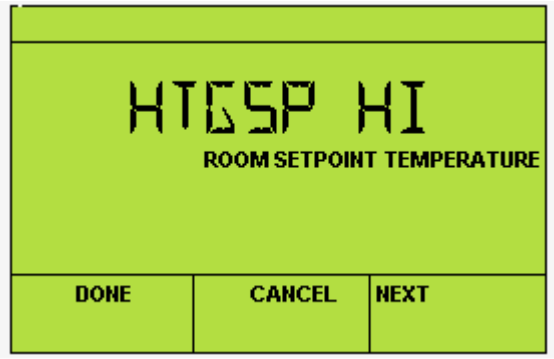

Figure 52: Parameter Wm Config Htgsp Hi

HTGSP HI: Displays and allows modification of heating setpoint high limit. Its value ranges from HTGSP LO to +100.

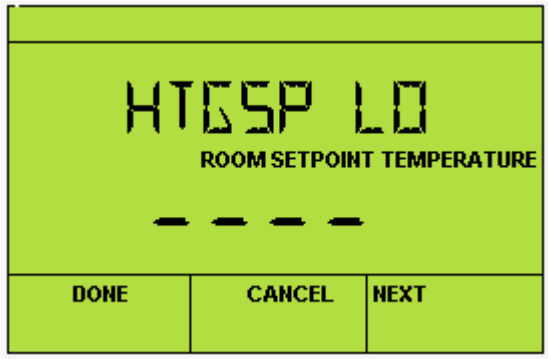

Figure 53: Parameter Wm Config Htgsp Lo

HTGSP LO: Displays and allows modification of heating setpoint low limit. Its value ranges from 0 to HTGSP HI.

Figure 54: Parameter Wm Config Clgsp Hi

CLGSP HI: Displays and allows modification of cooling setpoint high limit. Its value ranges from CLGSP LO to +100.

Figure 55: Parameter Wm Config Clgsp Lo

CLGSP LO: Displays and allows modification of cooling setpoint low limit. Its value ranges from 0 to CLGSP HI.

Figure 56: Parameter Wm Config Efhtg HI

EFHTG HI: Displays effective heating high setpoint.

Figure 57: Parameter Wm Config Efhtg Lo

EFHTG LO: Displays effective heating low setpoint.

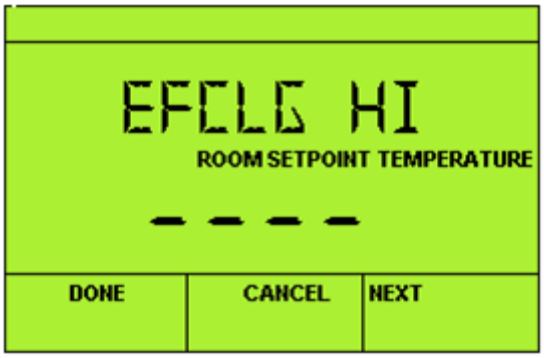

Figure 58: Parameter Wm Config Efclg HI

EFCLG HI: Displays effective cooling high setpoint.

Figure 59: Parameter Wm Config Efclg Lo

EFCLG LO: Displays effective cooling low setpoint.

Cnfg Ctl

(CVAHU configuration for control)

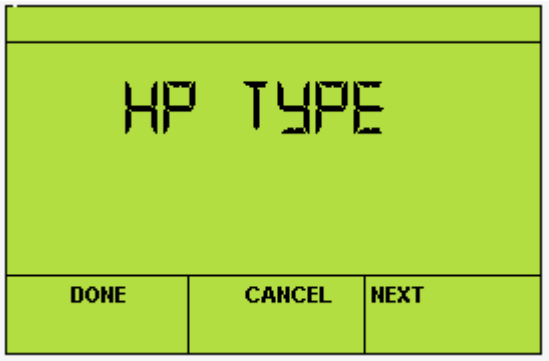

Figure 60: Parameter Cnfg Ctl Hp Type

HP TYPE: Displays and allows modification of heat pump type selection as; CON, GSHP, ASHP.

Default configuration: CON

Configuration settings in program are as follows:

0 = CON (Conventional control)

1 = GSHP (Water Source Heat Pump, WSHP.

Heat Pump Control with water status enable signal)

255 = ASHP (Air Source Heat Pump, ASHP.

Heat pump control without water status enable signal)

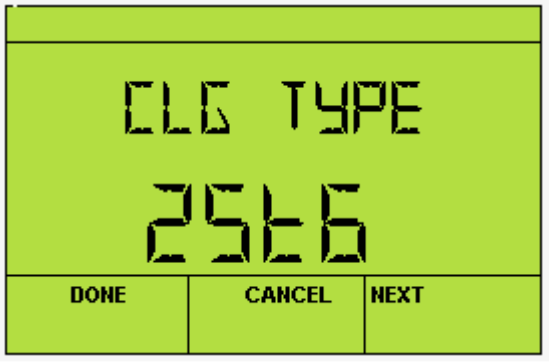

Figure 61: Parameter Cnfg Ctl Clg Type

CLG TYPE: Displays and allows modification of number of cooling/heat pump stages as: NONE, 1STG, 2STG, 3STG, 4STG, ANA.

Default configuration: 2STG

Configuration settings in program are as follows:

0 = NONE, 1 = 1STG, 2 = 2STG, 3 = 3STG,
4 = 4STG, 10 = ANA

Note:

1. Modulating cooling not compatible with Econo_Type = 1 Packaged.
2. Modulating compressor is not supported for heat pump control.
3. Automatic Gain Selection feature is enabled when Throttling Range (TR) is 0. Default TR is 0.

Figure 62: Parameter Cnfg Ctl Clg Tr

CLG TR: Displays and allows modification of space cooling PID control throttling range. Its value ranges from 0 to 30 ΔF.

Throttling Range (TR):

When TR is nonzero, this value of TR is used by the space cooling PID control.

Auto Gain Selection:

When TR is 0, Table 5 shows the TR values are used by the space cooling PID control.

Table 5: TR values used by the space cooling pid control

Type	Without Economizer TR	With Economizer TR
Mod	5	NA
1stg	3	5
2stg	5	7
3stg	7	9
4stg	9	11

Figure 63: Parameter Cnfg Ctl Clg It

CLG IT: Displays and allows modification of cooling PID control integral time. Its value ranges from 0 to 5000 sec.

Integral Time (IT):

When TR is nonzero, this value of IT is used by the space cooling PID control.

Auto Gain Selection:

When TR is 0, Table 6 shows the IT values are used by the space cooling PID control.

Table 6: IT values used by the space cooling pid control.

Type	Without Economizer IT	With Economizer IT
1stg	3333	2000
2stg	2000	1429
3stg	1429	1111
4stg	1111	909

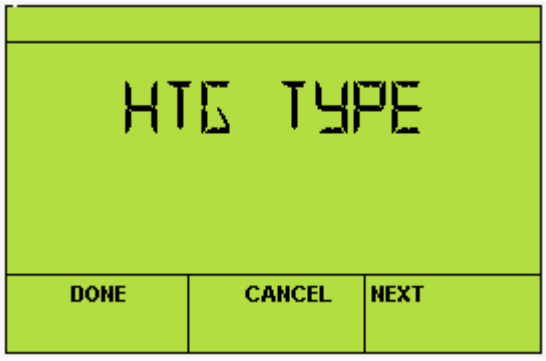

Figure 64: Parameter Cnfg Ctl Htg Type

HTG TYPE: Displays and allows modification of heating output type for conventional or heat pump auxiliary heat as: NONE, 1STG, 2STG, 3STG, 4STG, ANA.

Default configuration: 2STG

Configuration settings in program are as follows:

0 = NONE, 1 = 1STG, 2 = 2STG, 3 = 3STG,
4 = 4STG, 10 = ANA

Note:

1. Modulating heating is not supported for heat pump auxiliary heat.
2. Automatic Gain Selection feature is enabled when Throttling Range (TR) is 0. Default TR is 0

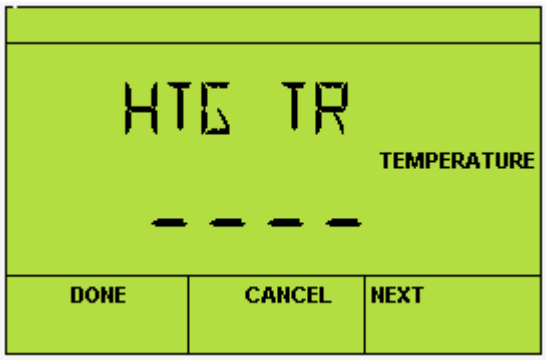

Figure 65: Parameter Cnfg Ctl Htg Tr

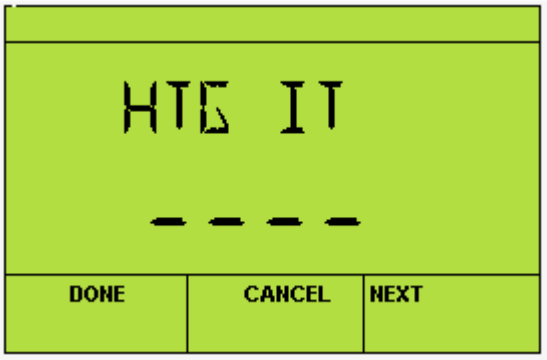

Figure 66: Parameter Cnfg Ctl Htg It

HTG TR: Displays and allows modification of space heating PID control throttling range. Its value ranges from 0 to 30 ΔF.

Throttling Range (TR):

When TR is nonzero, this value of TR is used by the space heating PID control.

Auto Gain Selection:

When TR is 0, Table 7 shows the TR values are used by the space heating PID control.

Table 7: TR values used by the space heating pid control.

Type	TR
1stg	3
2stg	5
3stg	7
4stg	8

HTG IT: Displays and allows modification of heating PID control integral time. Its value ranges from 0 to 5000 sec.

Integral Time (IT):

When TR is nonzero, this value of IT is used by the space heating PID control.

Auto Gain Selection:

When TR is 0, Table 8 shows the IT values are used by the space heating PID control.

Table 8: IT values used by the space heating pid control.

Type	IT
1stg	3333
2stg	2000
3stg	1429
4stg	1111

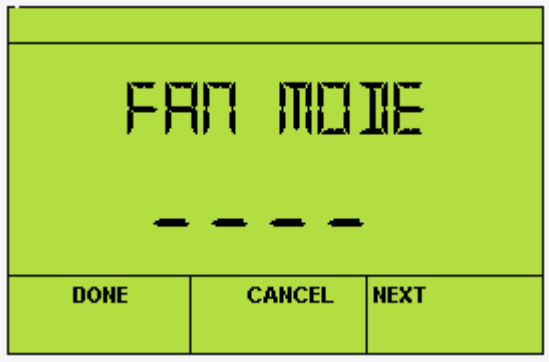

Figure 67: Parameter Cnfg Ctl Fan Mode

FAN MODE: Displays and allows modification of fan mode to be used for CVAHU. This can be changed as CONT, AUTO, FAN, and UNDEFINED.

Default configuration: UNDEFINED

Configuration settings in program are as follows:

0 = CONT (Fan runs continuously when the effective occupancy is OC OCCUPIED or OC BYPASS. The fan cycles on and off with demand for cooling and may cycle with heating if FanOnHeat is TRUE during OC UNOCCUPIED or OC STANDBY modes.)

1 = AUTO (Fan cycles on and off with demand for cooling and may cycle with heating if FanOnHeat is TRUE. This is known as the intermittent mode of operation.)

2 = FAN (Enable local fan switch)

255 = UNDEFINED

Figure 68: Parameter Cnfg Ctl Oc Snorp

OC SNORP: Displays and allows modification of occupancy sensor operation status. This can be changed as CLN, CONF, TNNT, and UNDEFINED.

Default configuration: UNDEFINED

Configuration settings in program are as follows:

1 = CLN (Unoccupied Cleaning Crew, when scheduled to be unoccupied and the occupancy sensor is active, switch to standby for the comfort of the cleaning crew)

2 = CONF (Conference Room, when scheduled to be unoccupied stay unoccupied independent of the occupancy sensor activity)

3 = TNNT (Unoccupied Tenant, when scheduled to be unoccupied and the occupancy sensor is active, switch to occupied for the comfort of the tenant.)

255 = UNDEFINED

Note:

1. If an occupancy sensor is configured and the space is scheduled for occupied and the occupancy sensor is inactive, the mode switches to standby.
2. Manual override commands have priority over the schedule and the occupancy sensor.
3. Occupancy Sensor Behavior
   a. 1 – No occupancy detected (inactive)
   b. 0 – Occupancy detected (active)

Cnfg Ui

(Configuration of CVAHU universal inputs)

Figure 69: Parameter Cnfg Ui Ui 1

UI 1: Displays and allows modification of input type for universal input 1. This can be changed as: NTC, TR T, TRAB, TRRL, DGNO, and DGNC.

Default configuration: NTC

Configuration settings in program are as follows:

0 = NTC (20 KNTC)

1 = TR T (TR2x 20KNTC)

2 = TRAB (TR2x Setpoint Absolute)

3 = TRRL (TR2x Setpoint Relative)

14 = DGNO (Digital Normally Open)

15 = DGNC (Digital Normally Closed)

Clicking **NEXT** the following parameters are available with configuration settings similar to UI1:

UI2 = Universal Input2

UI3 = Universal Input3

UI4 = Universal Input4

UI5 = Universal Input5

UI6 = Universal Input6

Cnfg Di

(Configuration of CVAHU digital inputs)

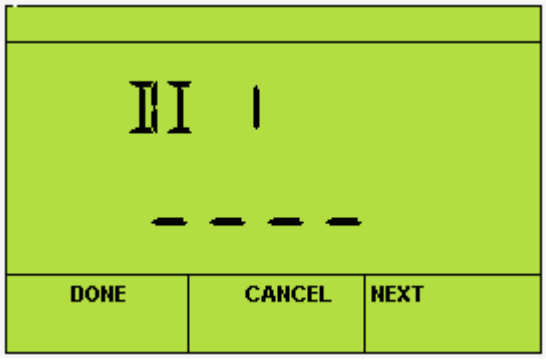

Figure 70: Parameter Cnfg Di Di 1

DI 1: Displays and allows modification of input type for digital input 1. This can be changed as: DGNO, DGNC, and UNDEFINED.

Default configuration: UNDEFINED

Configuration settings in program are as follows:

14 = DGNO (Digital Normally Open)

15 = DGNC (Digital Normally Closed)

255 = UNDEFINED

Clicking **NEXT** the following parameters are available with configuration settings similar to DI1:

DI2 = Digital Input2

DI3 = Digital Input3

DI4 = Digital Input4

Cnfg In

(Configuration of CVAHU inputs)

Figure 71: Parameter Cnfg In Spe Temp

SPC TEMP: Displays and allows modification of logical input configuration /terminal assignment for space temperature. This can be changed as UI 1, UI 2, UI 3, UI 4, UI 5, UI 6, ZIO, and UNDEFINED.

Default Parameter setting: UNDEFINED

Configuration settings in program are as follows:

0 = UI 1

1 = UI 2

2 = UI 3

3 = UI 4

4 = UI 5

5 = UI 6

7 = ZIO

255 = UNDEFINED

Figure 72: Parameter Cnfg In Spe Rh

SPC RH: Displays and allows modification of logical input configuration /terminal assignment for space relative humidity. This can be changed as UI 1, UI 2, UI 3, UI 4, UI 5, UI 6, ZIO, and UNDEFINED.

Default Parameter setting: UNDEFINED

Configuration settings in program are as follows:

0 = UI 1

1 = UI 2

2 = UI 3

3 = UI 4

4 = UI 5

5 = UI 6

7 = ZIO

255 = UNDEFINED

Figure 73: Parameter Cnfg In Spe CO_2

SPC CO_2: Displays and allows modification of logical input configuration /terminal assignment for space CO_2. This can be changed as: UI 1, UI 2, UI 3, UI 4, UI 5, UI 6, and UNDEFINED.

Default Parameter setting: UNDEFINED

Configuration settings in program are as follows:

0 = UI 1

1 = UI 2

2 = UI 3

3 = UI 4

4 = UI 5

5 = UI 6

255 = UNDEFINED

Figure 74: Parameter Cnfg In Dischair

DISCHAIR: Displays and allows modification of logical input configuration /terminal assignment for discharge air temperature. This can be changed as: UI 1, UI 2, UI 3, UI 4, UI 5, UI 6, SB8, SB9, SB10, SB11, SB12, and UNDEFINED.

Default Parameter setting: UNDEFINED

Configuration settings in program are as follows:

0 = UI 1
1 = UI 2
2 = UI 3
3 = UI 4
4 = UI 5
5 = UI 6
21 = SB8 (C7400s temperature bus Address = 8)
22 = SB9 (C7400s temperature bus Address = 9)
23 = SB10 (C7400s temperature bus Address = 10)
24 = SB11 (C7400s temperature bus Address = 11)
25 = SB12 (C7400s temperature bus Address = 12)
255 = UNDEFINED

Note:

1. Up to 5 Sbus sensor are supported. The Sbus address is fixed and the configuration enables addresses 8 through 12.
2. Bus address = DIPswitchVal + 8
3. Sbus address is fixed

Sensor #	Bus Address	DIP SW 123
0	8	000
1	9	100
2	10	010
3	11	110
4	12	001

Figure 75: Parameter Cnfg In Mixedair

MIXEDAIR: Displays and allows modification of logical input configuration /terminal assignment for mixed air temperature. This can be changed as UI 1, UI 2, UI 3, UI 4, UI 5, UI 6, SB8, SB9, SB10, SB11, SB12, and UNDEFINED

Default Parameter setting: UNDEFINED.

Configuration settings in program are as follows:

0 = UI 1

1 = UI 2

2 = UI 3

3 = UI 4

4 = UI 5

5 = UI 6

21 = SB8 (C7400s temperature bus Address = 8)

22 = SB9 (C7400s temperature bus Address = 9)

23 = SB10 (C7400s temperature bus Address = 10)

24 = SB11 (C7400s temperature bus Address = 11)

25 = SB12 (C7400s temperature bus Address = 12)

255 = UNDEFINED

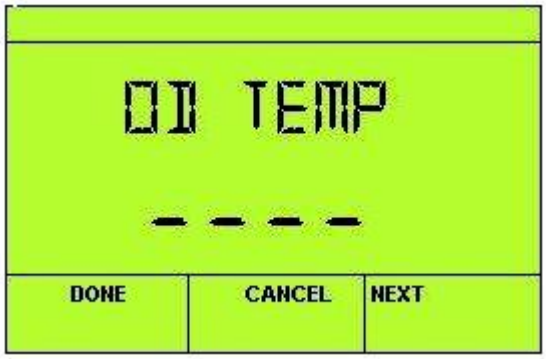

Figure 76: Parameter Cnfg In Od Temp

OD TEMP: Displays and allows modification of logical input configuration /terminal assignment for outside air temperature. This can be changed as UI 1, UI 2, UI 3, UI 4, UI 5, UI 6, SB8, SB9, SB10, SB11, SB12, and UNDEFINED.

Default Parameter setting: UNDEFINED

Configuration settings in program are as follows:

0 = UI 1

1 = UI 2

2 = UI 3

3 = UI 4

4 = UI 5

5 = UI 6

21 = SB8 (C7400s temperature bus Address = 8)

22 = SB9 (C7400s temperature bus Address = 9)

23 = SB10 (C7400s temperature bus Address = 10)

24 = SB11 (C7400s temperature bus Address = 11)

25 = SB12 (C7400s temperature bus Address = 12)

255 = UNDEFINED

Figure 77: Parameter Cnfg In Occ Snsr

OCC SNSP: Displays and allows modification of logical input configuration /terminal assignment for occupancy sensor. This can be changed as UI 1, UI 2, UI 3, UI 4, UI 5, UI 6, DI 1, DI 2, DI 3, DI 4, and UNDEFINED

Default Parameter setting: UNDEFINED.

Configuration settings in program are as follows:

0 = UI 1

1 = UI 2

2 = UI 3

3 = UI 4

4 = UI 5

5 = UI 6

47 = DI 1

48 = DI 2

49 = DI 3

50 = DI 4

255 = UNDEFINED

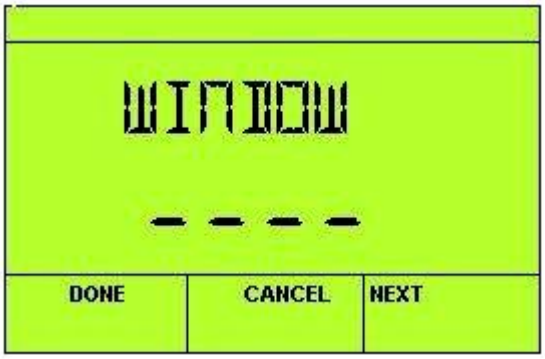

Figure 78: Parameter Cnfg In Window

WINDOW: Displays and allows modification of logical input configuration /terminal assignment for window contacts. This can be changed as UI 1, UI 2, UI 3, UI 4, UI 5, UI 6, DI 1, DI 2, DI 3, DI 4, and UNDEFINED.

Default Parameter setting: UNDEFINED

Configuration settings in program are as follows:

0 = UI 1

1 = UI 2

2 = UI 3

3 = UI 4

4 = UI 5

5 = UI 6

47 = DI 1

48 = DI 2

49 = DI 3

50 = DI 4

255 = UNDEFINED

AO1

(Analog output1 range configuration)

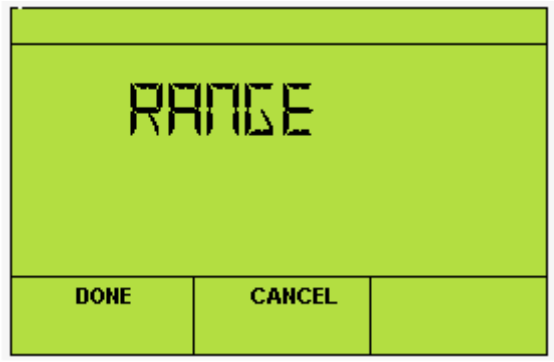

Figure 79: Parameter AO1 Range

RANGE: Displays and allows modification of analog output1 range. This can be changed as 0D10, 10D0, 2D10, 10D2, 0A20, 20A0, 0A22, 22A0, 4A20, 20A4, DIG, and UNDEFINED.

Default Parameter setting: UNDEFINED

Configuration settings in program are as follows:

0 = 0D10 (Analog voltage 0 to 10VDC direct output)

1 = 10D0 (Analog voltage 0 to 10VDC reverse output)

2 = 2D10 (Analog voltage 2 to 10VDC direct output)

3 = 10D2 (Analog voltage 2 to 10VDC reverse output)

4 = 0A20 (Analog current 0 to 20 mA direct output)

5 = 20A0 (Analog current 0 to 20 mA reverse output)

6 = 0A22 (Analog current 0 to 22 mA direct output)

7 = 22A0 (Analog current 0 to 22 mA reverse output)

8 = 4A20 (Analog current 4 to 20 mA direct output)

9 = 20A4 (Analog current 4 to 20 mA reverse output)

10 = DIG (Analog as binary output)

255 = UNDEFINED

AO2

(Analog output2 range configuration)

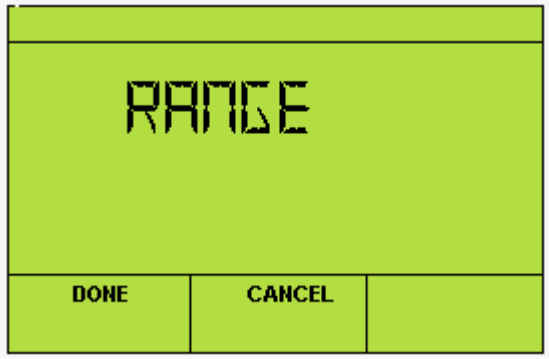

Figure 80: Parameter AO2 Range

RANGE: Displays and allows modification of analog output2 range. This can be changed as 0D10, 10D0, 2D10, 10D2, 0A20, 20A0, 0A22, 22A0, 4A20, 20A4, DIG, and UNDEFINED.

Default Parameter setting: UNDEFINED

Configuration settings in program are as follows:

0 = 0D10 (Analog voltage 0 to 10VDC direct output)

1 = 10D0 (Analog voltage 0 to 10VDC reverse output)

2 = 2D10 (Analog voltage 2 to 10VDC direct output)

3 = 10D2 (Analog voltage 2 to 10VDC reverse output)

4 = 0A20 (Analog current 0 to 20 mA direct output)

5 = 20A0 (Analog current 0 to 20 mA reverse output)

6 = 0A22 (Analog current 0 to 22 mA direct output)

7 = 22A0 (Analog current 0 to 22 mA reverse output)

8 = 4A20 (Analog current 4 to 20 mA direct output),

9 = 20A4 (Analog current 4 to 20 mA reverse output)

10 = DIG (Analog as binary output)

255 = UNDEFINED

AO3

(Analog output3 range configuration)

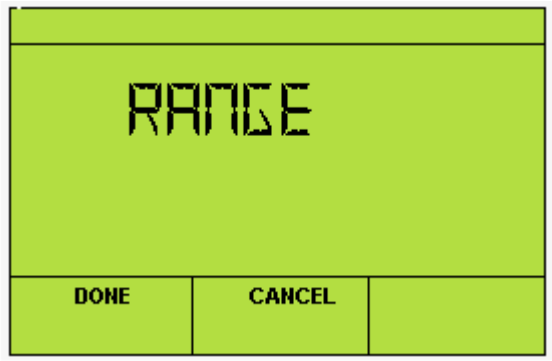

Figure 81: Parameter AO3 Range

RANGE: Displays and allows modification of analog output3 range. This can be changed as 0D10, 10D0, 2D10, 10D2, 0A20, 20A0, 0A22, 22A0, 4A20, 20A4, DIG, and UNDEFINED.

Default Parameter setting: UNDEFINED

Configuration settings in program are as follows:

0 = 0D10 (Analog voltage 0 to 10VDC direct output)

1 = 10D0 (Analog voltage 0 to 10VDC reverse output)

2 = 2D10 (Analog voltage 2 to 10VDC direct output)

3 = 10D2 (Analog voltage 2 to 10VDC reverse output)

4 = 0A20 (Analog current 0 to 20 mA direct output)

5 = 20A0 (Analog current 0 to 20 mA reverse output)

6 = 0A22 (Analog current 0 to 22 mA direct output)

7 = 22A0 (Analog current 0 to 22 mA reverse output)

8 = 4A20 (Analog current 4 to 20 mA direct output)

9 = 20A4 (Analog current 4 to 20 mA reverse output)

10 = DIG (Analog as binary output)

255 = UNDEFINED

Cnfg Out

(Configuration of CVAHU analog and digital outputs)

Figure 82: Parameter Cnfg Out Clg Stg1

CLG STG1: Displays and allows modification of logical output configuration /terminal assignment for Cooling or Heat Pump stage 1 command. This can be changed as AO 1, AO 2, DOC1, DOA1, DOA2, DOA3, DOB1, DOB2, DOB3, DOB4, AO 3, and UNDEFINED.

Default Parameter setting: UNDEFINED

Configuration settings in program are as follows:

0 = AO 1

1 = AO 2

2 = DOC1 (DO1)

3 = DOA1 (DO2)

4 = DOA2 (DO3)

5 = DOA3 (DO4)

6 = DOB1 (DO5)

7 = DOB2 (DO6)

8 = DOB3 (DO7)

9 = DOB4 (DO8)

10 = AO 3

255 = UNDEFINED

Figure 83: Parameter Cnfg Out Clg Stg2

CLG STG2: Displays and allows modification of logical output configuration /terminal assignment for Cooling or Heat Pump stage 2 Command. This can be changed as AO 1, AO 2, DOC1, DOA1, DOA2, DOA3, DOB1, DOB2, DOB3, DOB4, AO 3, and UNDEFINED.

Default Parameter setting: UNDEFINED

Configuration settings in program are as follows:

0 = AO 1

1 = AO 2

2 = DOC1 (DO1)

3 = DOA1 (DO2)

4 = DOA2 (DO3)

5 = DOA3 (DO4)

6 = DOB1 (DO5)

7 = DOB2 (DO6)

8 = DOB3 (DO7)

9 = DOB4 (DO8)

10 = AO 3

255 = UNDEFINED

Figure 84: Parameter Cnfg Out Clg Stg3

Figure 85: Parameter Cnfg Out Hp Chang

CLG STG3: Displays and allows modification of logical output configuration /terminal assignment for Cooling or Heat Pump stage 3 Command. This can be changed as AO 1, AO 2, DOC1, DOA1, DOA2, DOA3, DOB1, DOB2, DOB3, DOB4, AO 3, and UNDEFINED.

Default Parameter setting: UNDEFINED

Configuration settings in program are as follows:

0 = AO 1

1 = AO 2

2 = DOC1 (DO1)

3 = DOA1 (DO2)

4 = DOA2 (DO3)

5 = DOA3 (DO4)

6 = DOB1 (DO5)

7 = DOB2 (DO6)

8 = DOB3 (DO7)

9 = DOB4 (DO8)

10 = AO 3

255 = UNDEFINED

HP CHANG: Displays and allows modification of logical output configuration /terminal assignment Heat Pump change over relay command. This can be changed as AO 1, AO 2, DOC1, DOA1, DOA2, DOA3, DOB1, DOB2, DOB3, DOB4, AO 3, and UNDEFINED.

Default Parameter setting: UNDEFINED

Configuration settings in program are as follows:

0 = AO 1

1 = AO 2

2 = DOC1 (DO1)

3 = DOA1 (DO2)

4 = DOA2 (DO3)

5 = DOA3 (DO4)

6 = DOB1 (DO5)

7 = DOB2 (DO6)

8 = DOB3 (DO7)

9 = DOB4 (DO8)

10 = AO 3

255 = UNDEFINED

Figure 86: Parameter Cnfg Out Htg Stg1

Figure 87: Parameter Cnfg Out Htg Stg2

HTG STG1: Displays and allows modification of logical output configuration /terminal assignment for Heating stage 1 Command. This can be changed as AO 1, AO 2, DOC1, DOA1, DOA2, DOA3, DOB1, DOB2, DOB3, DOB4, AO 3, and UNDEFINED.

Default Parameter setting: UNDEFINED

Configuration settings in program are as follows:

0 = AO 1

1 = AO 2

2 = DOC1 (DO1)

3 = DOA1 (DO2)

4 = DOA2 (DO3)

5 = DOA3 (DO4)

6 = DOB1 (DO5)

7 = DOB2 (DO6)

8 = DOB3 (DO7)

9 = DOB4 (DO8)

10 = AO 3

255 = UNDEFINED

HTG STG2: Displays and allows modification of logical output configuration /terminal assignment for Heating stage 2 Command. This can be changed as AO 1, AO 2, DOC1, DOA1, DOA2, DOA3, DOB1, DOB2, DOB3, DOB4, AO 3, and UNDEFINED.

Default Parameter setting: UNDEFINED

Configuration settings in program are as follows:

0 = AO 1

1 = AO 2

2 = DOC1 (DO1)

3 = DOA1 (DO2)

4 = DOA2 (DO3)

5 = DOA3 (DO4)

6 = DOB1 (DO5)

7 = DOB2 (DO6)

8 = DOB3 (DO7)

9 = DOB4 (DO8)

10 = AO 3

255 = UNDEFINED

Figure 88: Parameter Cnfg Out HtgStg3

HTG STG3: Displays and allows modification of logical output configuration /terminal assignment for Heating stage 3 Command. This can be changed as AO 1, AO 2, DOC1, DOA1, DOA2, DOA3, DOB1, DOB2, DOB3, DOB4, AO 3, and UNDEFINED.

Default Parameter setting: UNDEFINED

Configuration settings in program are as follows:

0 = AO 1

1 = AO 2

2 = DOC1 (DO1)

3 = DOA1 (DO2)

4 = DOA2 (DO3)

5 = DOA3 (DO4)

6 = DOB1 (DO5)

7 = DOB2 (DO6)

8 = DOB3 (DO7)

9 = DOB4 (DO8)

10 = AO 3

255 = UNDEFINED

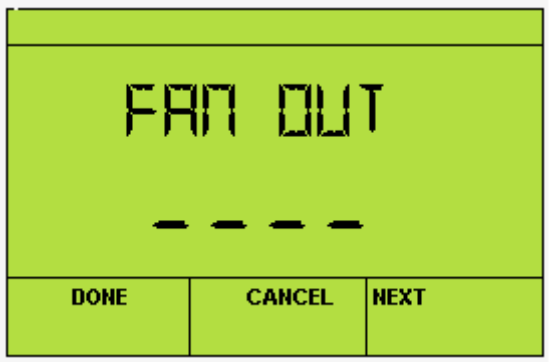

Figure 89: Parameter Cnfg Out Fan Out

FAN OUT: Displays and allows modification of logical output configuration /terminal assignment for Fan Start-Stop Command. This can be changed as AO 1, AO 2, DOC1, DOA1, DOA2, DOA3, DOB1, DOB2, DOB3, DOB4, AO 3, and UNDEFINED.

Default Parameter setting: UNDEFINED

Configuration settings in program are as follows:

0 = AO 1

1 = AO 2

2 = DOC1 (DO1)

3 = DOA1 (DO2)

4 = DOA2 (DO3)

5 = DOA3 (DO4)

6 = DOB1 (DO5)

7 = DOB2 (DO6)

8 = DOB3 (DO7)

9 = DOB4 (DO8)

10 = AO 3

255 = UNDEFINED

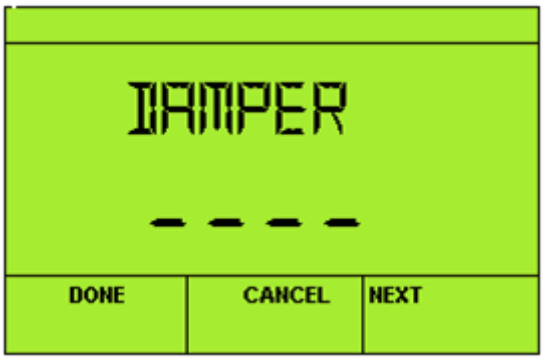

Figure 90: Parameter Cnfg Out Damper

DAMPER: Displays and allows modification of logical output configuration /terminal assignment for Damper control signal. This can be changed as AO 1, AO 2, AO 3, and UNDEFINED.

Default Parameter setting: UNDEFINED

Configuration settings in program are as follows:

0 = AO 1

1 = AO 2

10 = AO 3

255 = UNDEFINED

Time

(CVAHU controller time display)

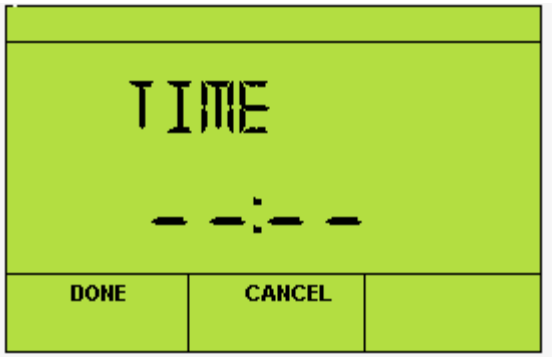

Figure 91: Parameter Time Time

TIME: Displays current time in HH MM format.

Set Time

(CVAHU controller time configuration/settings)

Figure 92: Parameter Set Time Hours

HOURS: Displays and allows modification of time in hours. Its value ranges from 0 to 11.

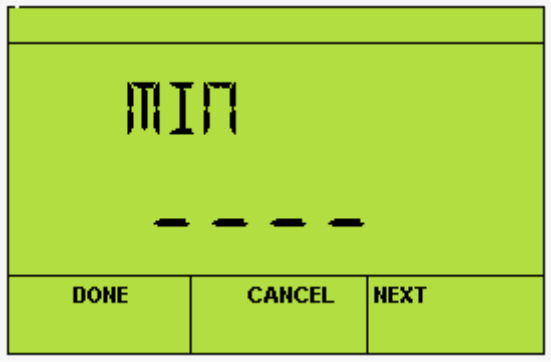

Figure 93: Parameter Set Time Min

MIN: Displays and allows modification of time in minutes. Its value ranges from 0 to 59.

Set Date

(CVAHU controller date configuration/settings)

Figure 94: Parameter Set Date Year

YEAR: Displays and allows modification of date in years. Its value ranges from 2008 to 2099.

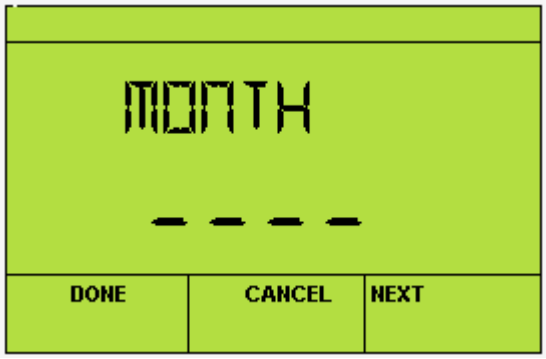

Figure 95: Parameter Set Date Month

MONTH: Displays and allows modification of date in months. Its value ranges from 0 to 12.

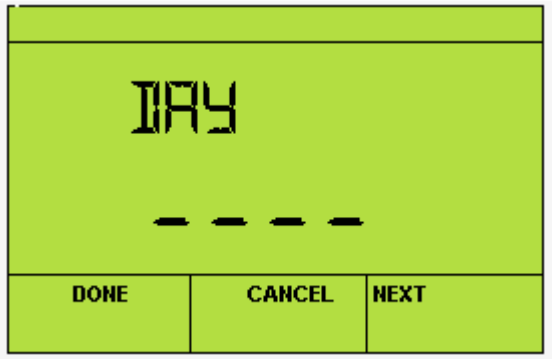

Figure 96: Parameter Set Date Day

DAY: Displays and allows modification of date in days. Its value ranges from 0 to 31.

Schedule

The Schedule option lets you modify the schedule and change CVAHU Stryker's time.
The desired scheduling option (8 day, 7 days, etc.) is setup in the Configuration Wizard (refer 63-2719: LCD Wall Module Wall Operating Guide). The option screens vary based on that selection.

Following example illustrates the steps for viewing/editing a schedule for Monday. You can similarly view/edit schedule for Saturday and any other holiday

Step 1: To access schedule parameter group refer section Parameters.

Figure 97: Parameter Schedule

Step 2: Use the **EDIT** soft key to move to the next screen (e. g. Monday).

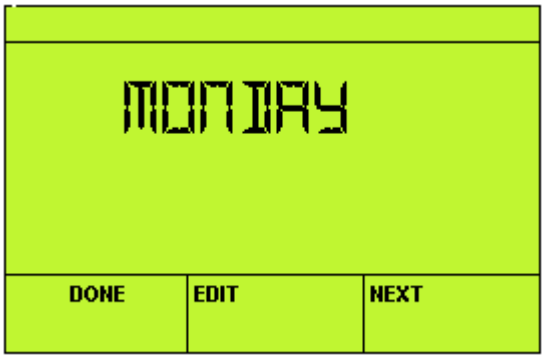

Figure 98: Parameter Schedule Monday

Step 3: Use the **EDIT** soft key to move to the next screen (e. g. MON E1).

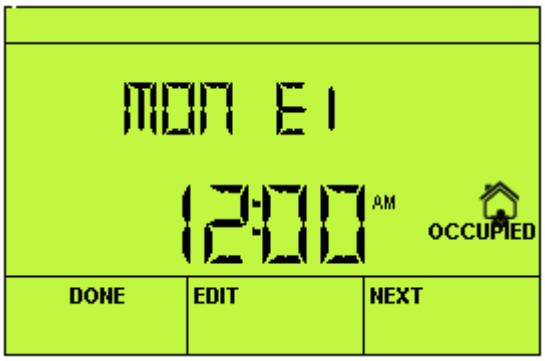

Figure 99: Parameter Schedule Monday Mon E1

Click the **EDIT** soft key to change the time and occupancy state for this event.

1. Use the up/down arrows to change the time.
2. When editing an event, use the **NEXT** soft key to toggle between editing the time and changing the occupancy state (i.e. OCC/UNOCC/STANDBY).
3. Use the up/down arrows to change occupancy state.
4. Click **DONE** soft key to apply changed time and occupancy state settings.
5. Click **CANCEL** soft key to exit the **MON E1** screen display without saving any changes.
6. Click **NEXT** and follow above mentioned steps 1 to step 6, to view or edit next three events i. e. MON E2, MON E3, and MON E4.

To remove a programmed event, use the up/down arrow keys to scroll the time to either 12:00 p.m. or 12:00 a.m. Just before reaching 12:00 the time changes to four dashes (- - - -). Click the **DONE** soft key at this point to remove a programmed event.

In the 5-2 or 5-2-1 schedule options:

- “5” means Monday to Friday and Monday's events are shown on the Zio.
- “2” means Saturday and Sunday and Saturday's events are shown on the Zio.
- “1” means holiday.

When Monday is changed, the TR75 copies that event to Tuesday and so on till Friday. It updates this schedule into the controller for Monday through Friday. The same occurs for Saturday and Sunday when a change is made on Saturday. When a holiday is modified it is also updated into the controller.

Tenant Mode: Introduction

The tenant, using the soft keys and arrow keys, may change following features if these are configured.

1. Setpoints
2. Fan speed
3. System mode (heat/cool)
4. Initiate override
    - The tenant can change the **Occupancy Override** parameter to **Occupied, Unoccupied**, or **Standby**. And, the override can be timed in minutes, days, or be continuous.

Note:

Following parameters/home screen's in Tenant view/adjust mode are for reference only and may change as per configuration done in contractor mode.

Tenant Mode: View Steps

Tenant mode default home screen is as shown Figure 100 for reference.

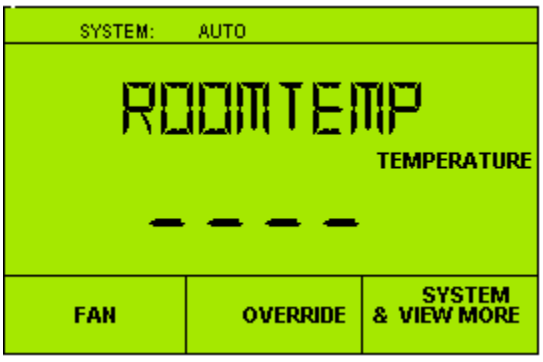

Figure 100: Tenant mode home screen

Note:

Tenant mode default home screen may be in any one of out of above mentioned four home screen set by the contractor. Refer Set Home Screen

HOME SCREEN label: ROOMTEMP

Description: Displays system status and room temperature.

By referring to Figure 100, Tenant mode home screen, has the following three soft keys. They provide the following options which are explained below in detail:

1. Fan
2. Override
3. System and view mode

Note:

1. The fan and override settings are optional for home screen setup.
2. If the system command option is not enabled, then the **SYSTEM** soft key does not display on the tenant's home screen.
3. If there are no parameters configured for tenant's access, the **VIEW MORE** soft key does not display on the tenant's home screen

Fan

The tenant uses Fan to adjust the fan settings depending on the fan options. It has three possible positions (2, 3, or 5 position) configured.

Click the **FAN** soft key to change the fan icon to the following three positions as shown in Figure 101:

1. AUTO

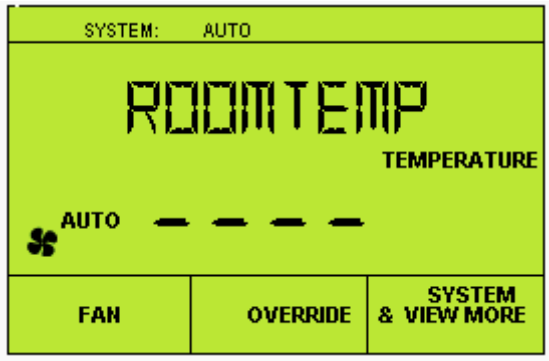

Figure 101: Tenant mode Fan Auto

Description: Fan has three modes of operation:-

- **AUTO**: Operates in Auto mode.Refer Figure 101.
- **ON:** Operates in manual ON mode. Refer Figure 102.
- **OFF**: Operates in manual OFF mode. Refer Figure 103.

2. ON

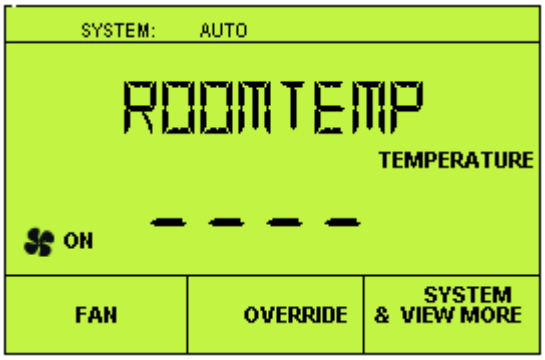

Figure 102: Tenant mode Fan On

3. OFF

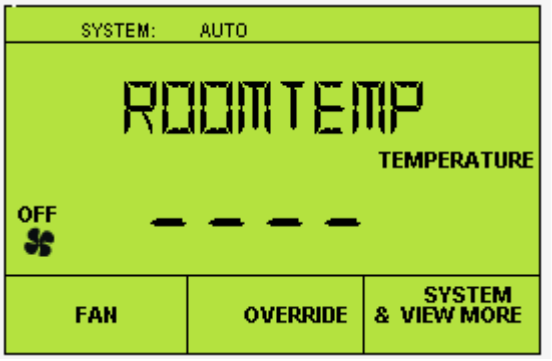

Figure 103: Tenant mode Fan Off

- Click the **FAN** softkey to toggle the fan icon between **ON** and **AUTO**. If the fan is at 2 positions then each click on the **FAN** soft key, changes the fan icon display between: **ON** and **AUTO**.
- At position number 5, Fan icon display changes to one of the following two options:
  - **OFF**
  - **AUTO**.
- And Fan speed indicator is in one of the following states:
  - Low
  - Medium
  - High

Override

Override allows the tenant to override the occupancy settings (see Figure 104)

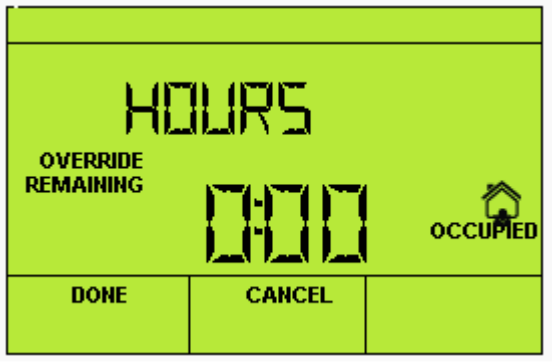

Figure 104: Tenant Override

Description: Override is used to make CVAHU ON before or after occupied schedule or time. Override remaining displays duration left (in hours and minutes) for the override.

For example, if occupied duration is 9:00 AM to 6:00 PM and override operation is configured for one hour, and if override is applied at 6 PM then override remaining will be 25 minutes at 6:35 PM.

- Depending on the occupancy/override configuration click the **OVERRIDE** soft key. The, occupancy icon changes to one of the following three modes:
  - Standby
  - Occupied
  - Unoccupied
- If an override is set by the tenant, the **OVERRIDE** soft key changes to **CANCEL OVERRIDE.**
- Click the **CANCEL OVERRIDE** soft key to cancel the override.

System & View More

Click the system & view more key to change the system state and view/adjust configured parameters (see Figure 105).

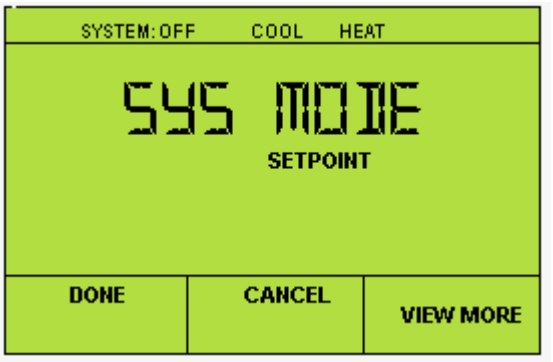

Figure 105: Tenant System and View More Sys mode

- Click the key. The first click displays the system information. Click the up and down arrow keys. The system state can assume one of the following states:
  - Off
  - Auto
  - Cool
  - Heat
- If the contractor enables tenants access to a parameter, then the tenant can use the up and down arrow keys to adjust the parameter's value, otherwise the tenant is able to only view the parameter and its value.
- Click **DONE** soft key to save configuration changes.
- Click the **CANCE**L soft key to exit the display without saving any changes.
- Click **VIEW MORE** soft key to display each viewable parameter.

For example,

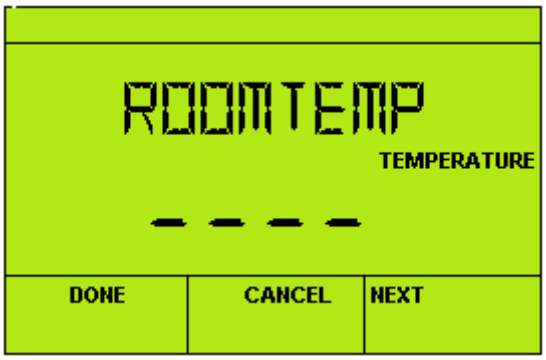

Figure 106: Tenant mode Room Temp

ROOM TEMP: Displays room temperature and is an input to the Sbus wall model function block.

- Use the **UP/DOWN** arrow keys on Zio module to increase or decrease the value or state for tenant adjustable parameters
- Click **DONE** soft key to save configuration changes.
- Click the **CANCEL** soft key to exit the display without saving any changes.

> **Note:**
>
> When the contractor configures a parameter and selects the Editable by tenant check box, this enables the tenant to adjust the parameter's value.

- Click **NEXT** to access parameters in following sequence.

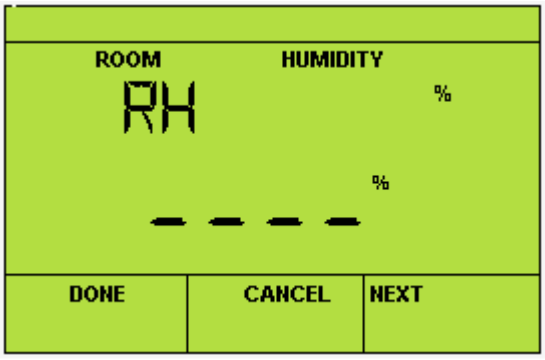

Figure 107: Tenant mode Rh

RH: Displays room humidity and is an input to the Sbus wall model function block.

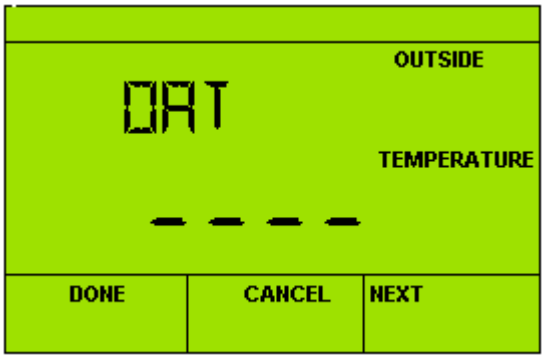

Figure 108: Tenant mode Oat

OAT: Displays outside air temperature and is an input to the Sbus wall model function block.

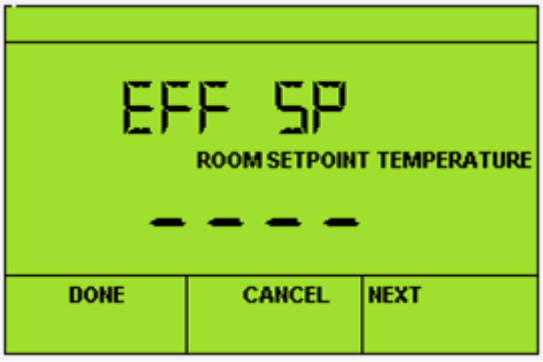

Figure 109: Tenant mode Eff Sp

EFF SP: Displays effective setpoint and is an input to the Sbus wall model function block.

Figure 110: Tenant mode Cntr Sp

CNTR SP: Displays and allows modification of centre setpoint. It is both an input and output to the Sbus wall model function block.

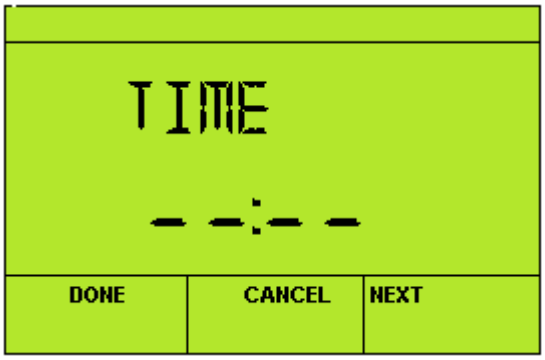

Figure 111: Tenant mode Time

TIME: Displays controller time in HH:MM format.

Figure 112: Tenant Mode Hours

MIN: Displays and allows modification of time in minutes. Its value ranges from 0 to 59.

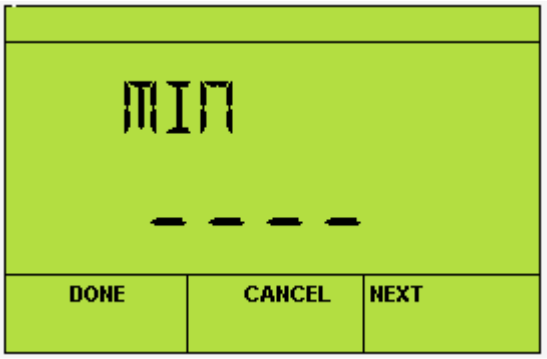

Figure 113: Tenant Mode Min

HOURS: Displays and allows modification of time in hours. Its value ranges from 0 to 11.

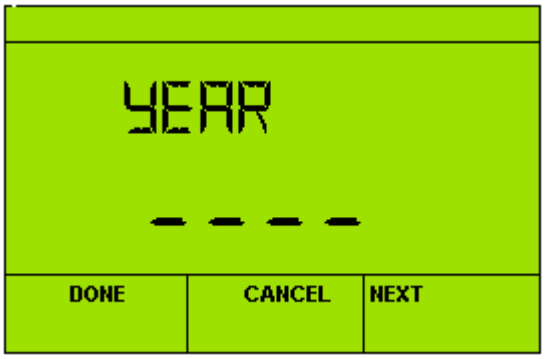

Figure 114: Tenant Mode Year

YEAR: Displays and allows modification of date in years. Its value ranges from 2008 to 2099

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